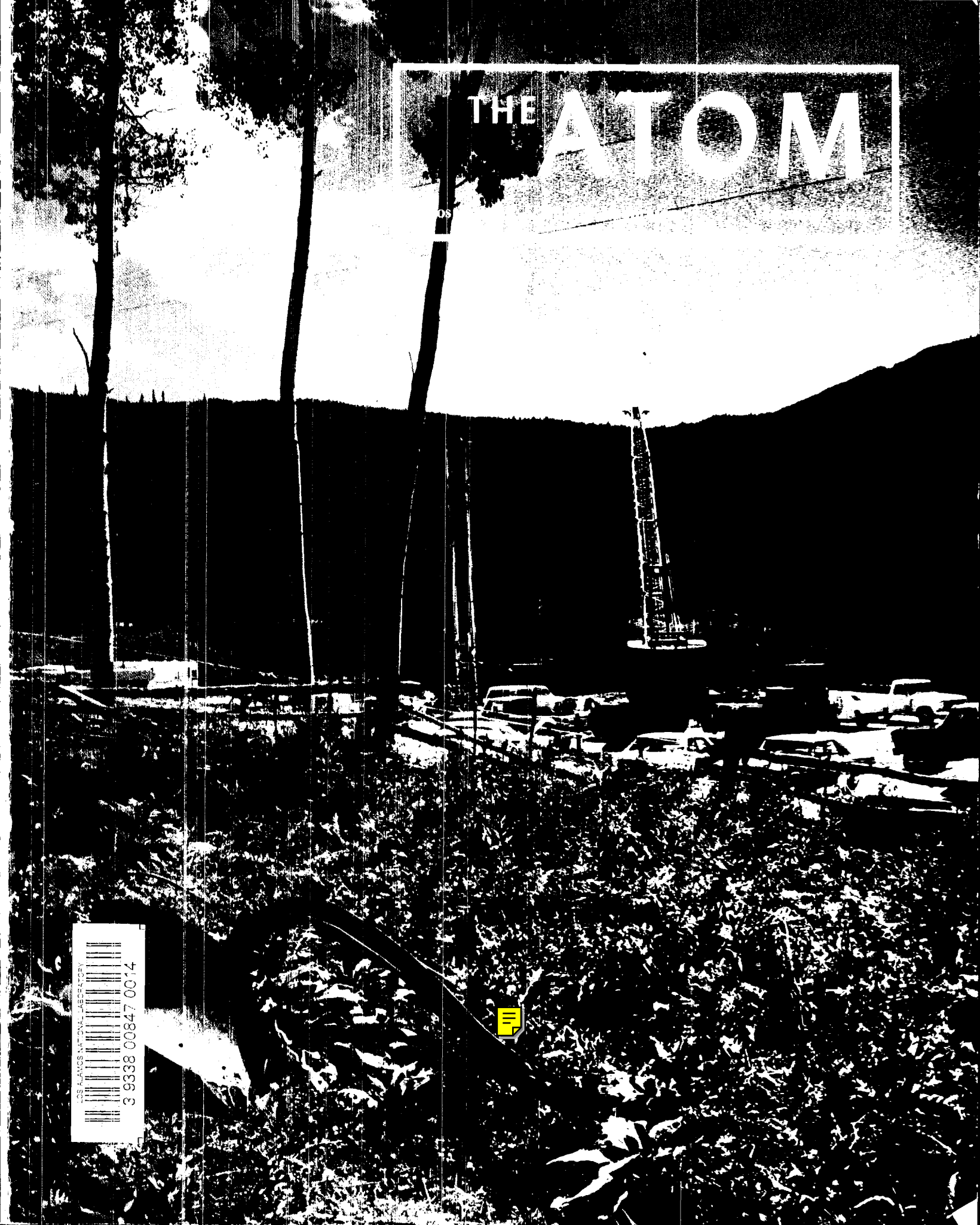
THE ATOM
LOS ALAMOS NATIONAL LABORATORY
3 9338 00847 0014

Volume 6 Number 10
October, 1969

THE ATOM

Published monthly by the University of California, Los Alamos Scientific Laboratory, Office of Public Relations, P. O. Box 1663, Los Alamos, New Mexico 87544. Second Class Postage Paid at Los Alamos.

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Office: D-413 Administration Building. Telephone: 7-6102. Printed by The University of New Mexico Printing Plant, Albuquerque.

COVER:

The plowshare on the moldboard of this old and rusty walking plow probably cut many a furrow in its day. It was particularly interesting to PUB-1 Photographer Bill Jack Rodgers because he was photographing the events of Project Rulison, a joint government-industry endeavor of the Atomic Energy Commission's Plowshare program. The story of the Rulison project begins on page 1.

The Rulison Project

Story begins on next page

From ground zero, foreground, on Battlement Mesa, the road winds down to the firing point (clearing at center). The L-shaped clearing at the base of western Colorado's Book Cliffs is the observer area.

A LASL nuclear device gets to the bottom of things

The first major entry of the Los Alamos Scientific Laboratory into the Plowshare program was marked by the successful detonation of a nuclear explosive for Project Rulison in western Colorado Sept. 10.

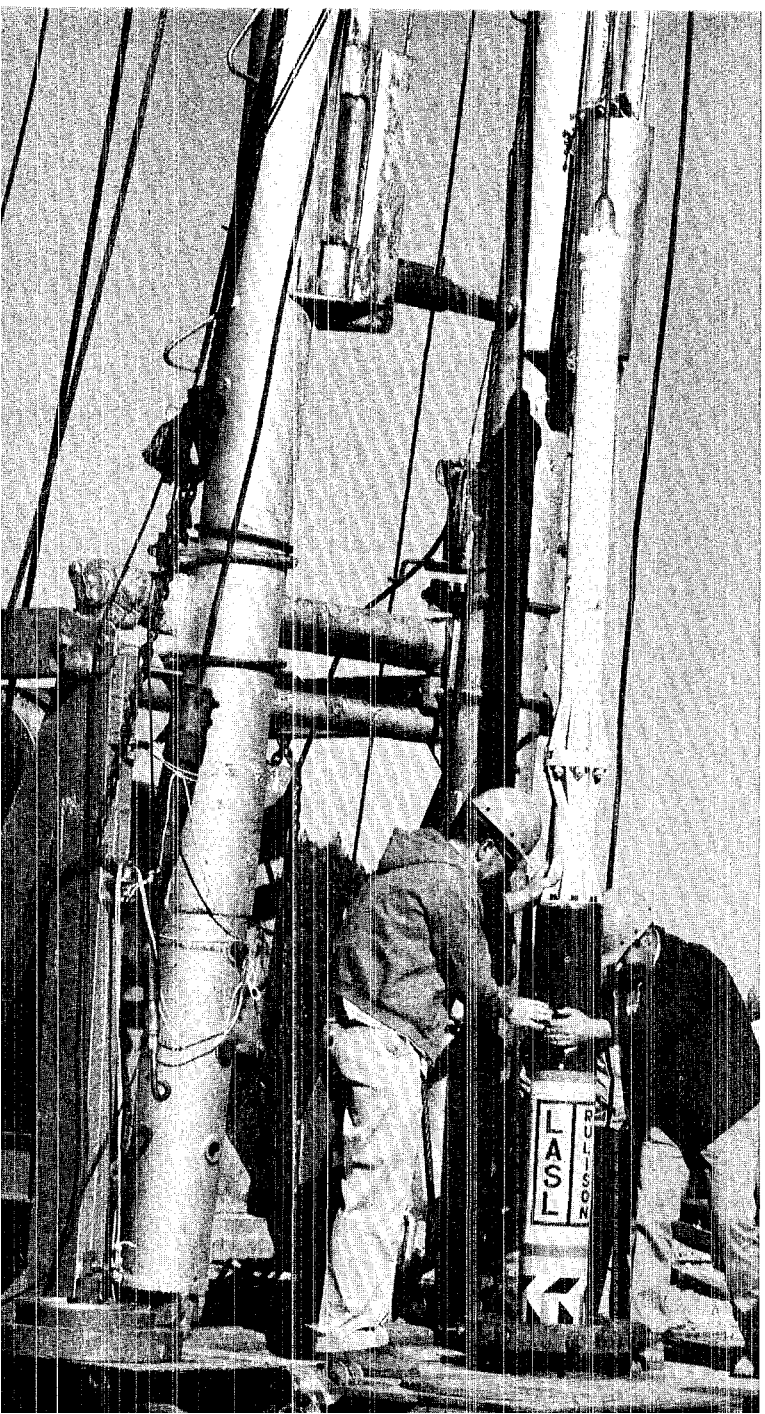
Plowshare is the AEC's research and development activity directed toward the establishment of the technical and economic feasibility of using nuclear explosives in industry and science.

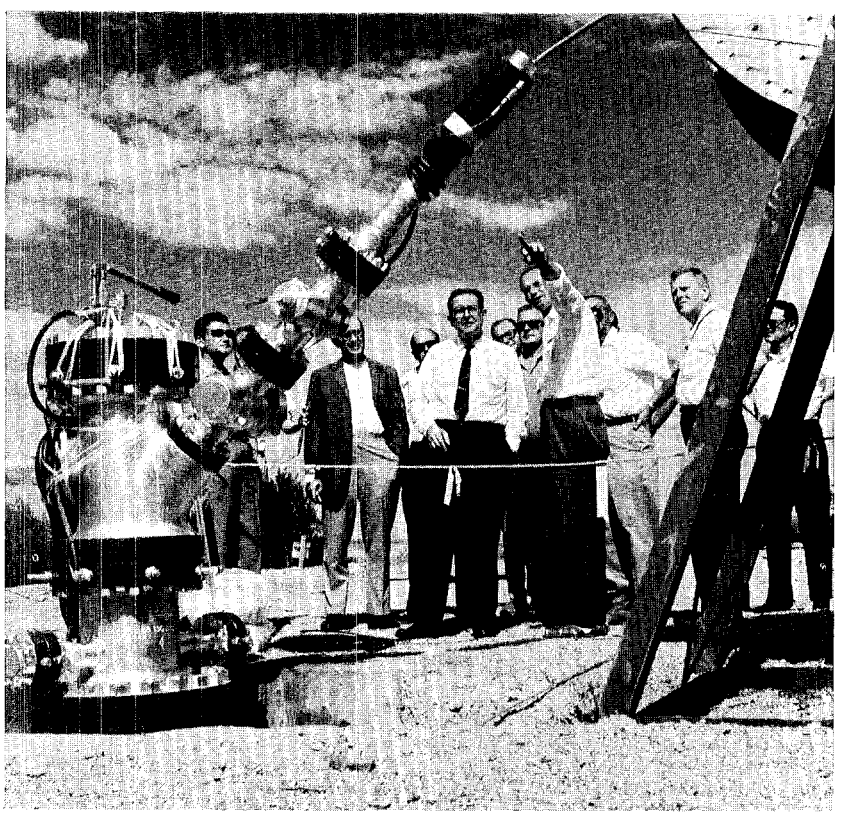
The purpose of Rulison is to provide data relating to the feasibility of using underground nuclear explosions to stimulate production of natural gas from low productivity formations.

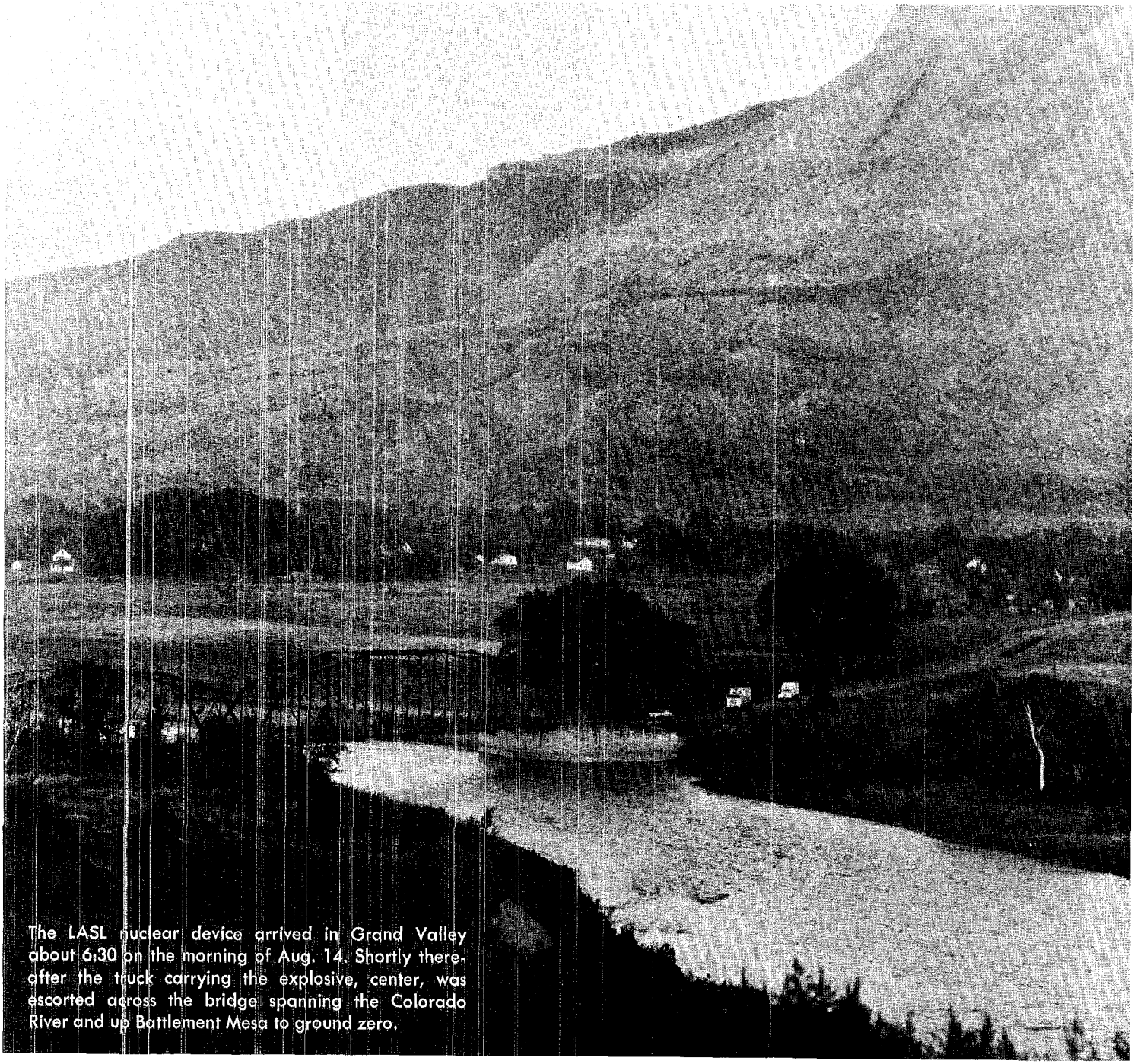
Rulison involved the detonation of a 40-kiloton nuclear explosive at a depth of 8,430 feet under Battlement Mesa—approximately 40 air miles northeast of Grand Junction, Colo.

The nuclear explosive was provided by LASL's Group W-3. The device used was based on a design of Group W-4's that had previously been tested at the Nevada Test Site. It was especially built and

The 40-kiloton nuclear device is lowered to the bottom of the 8,430-foot hole on Battlement Mesa.







The LASL nuclear device arrived in Grand Valley about 6:30 on the morning of Aug. 14. Shortly thereafter the truck carrying the explosive, center, was escorted across the bridge spanning the Colorado River and up Battlement Mesa to ground zero.

Bob Campbell, test director in charge of LASL operations for Rulison, points out the firing-cable to Congressman Craig Hosmer, a member of the Joint Committee on Atomic Energy. To Hosmer's right is Will Frank of Austral Oil Company.

modified by W-3 for this experiment and was not, contrary to what many of the official observers seemed to believe, an "off-the-shelf" nuclear device.

W-3 also conducted a number of environmental tests on the device as part of the overall safety precautions. These included tests for temperature and pressure.

For the first time ever, a nuclear device was exploded manually in lieu of an electronic timing system. W-3 was also responsible for firing the device. Johnnie Salazar, an electronics technician in that group, was the man who gave the countdown and pushed the red button to "fire." The button is slated to wind up in the LASL Science Museum and Exhibit Hall together with an exhibit on Rulison.

The emplacement of the device, after it arrived at the site in mid-August, was supervised by J-6. This group also coordinated the drilling and construction support for LASL

continued on next page

The Rulison Project

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and oversaw the stemming or backfilling of the shot hole after the device was emplaced.

J-8 provided an accurate record of detonation time (1500 hours, zero minutes, 0.11 seconds); made certain acceleration measurements; and operated the geophones which recorded earth vibrations. J-14 was responsible for the diagnostic measurements. Other groups which contributed to the project included J-1, H-1, GMX-1, D-8 and Supply and Property department. Robert Campbell, J-DO, was test director, responsible for all LASL operations, while Lee Aamodt, J-DOT, served as effects evaluation officer and science advisor.

Rulison is a joint government-industry experiment, sponsored by Austral Oil Company, Inc., of Houston, Texas, the Atomic Energy Commission and the Department of the Interior. Program management is provided by CER Geonuclear Corporation of Las Vegas, Nevada, under contract to Austral.

In conventional fields natural gas is produced commercially from underground reservoirs in which the gas is trapped within the pores between sand grains. When a well is drilled into such a reservoir rock, the natural reservoir pressure causes the gas to flow from the pores of the rock into the well.

In many areas of the western United States, much of the natural gas is found in reservoir rock of such low permeability (called "tight" by the industry) that the gas will not flow into a well in sufficient quantity to be produced economically.

Some increase in production can be obtained in such formations by conventionally fracturing the surrounding rock by injecting sand-laden fluids under high pressure into the well or by detonating chemical explosives such as nitroglycerin. The resulting increase in production, however, may be relatively short-lived.

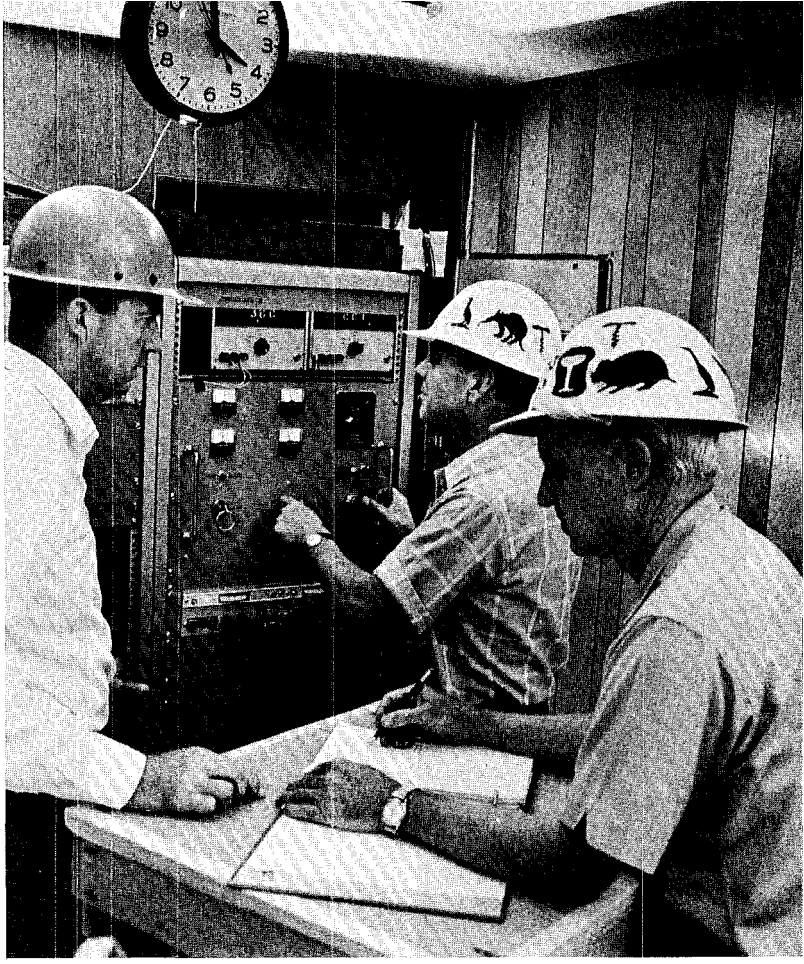
Nuclear explosives, like conventional explosives, also produce broken rock and fractures but far surpass the conventional techniques in magnitude. Conventional explosive fracturing, using 1,000 to 2,500 quarts of nitroglycerin, is insignificant when compared to the Rulison explosion which was equivalent to about 19,000,000 quarts of nitroglycerin, or about 8,000 times as great.

The Bureau of Mines estimates that nuclear stimulation could virtually double the nation's natural gas reserves by adding 300 trillion cubic feet of gas from "tight" formations to the present known reserves estimated at approximately 293 trillion cubic feet.

The Rulison site will be monitored and checked periodically during the next six months. Drill-back—to determine the results of the Rulison detonation—is expected to begin in the spring of 1970.

After the explosion, observers looked at ground zero again. It hadn't changed much.

The Countdown for Rulison began several years ago



A countdown and firing simulation demonstrated how the Rulison device would be detonated. Johnnie Salazar, center, with his right thumb on the red firing-button gave the countdown and fired the explosive. At left is Fred Doremire and, at right, Bob Lanter. All are members of Group W-3.

By Bill Richmond

"10. . . . 9. . . . 8. . ."

As the countdown progressed a hush fell over the listeners—those in the huge tent erected for the official observers and news media, those listening to radios in small, nearby communities, and those stopped at the numerous roadblocks in the area.

The date: September 10, 1969.

The time: A few seconds prior to 3 p.m.

The occasion: Project Rulison—an experiment in Colorado to determine the feasibility of increasing the recovery of natural gas through the use of nuclear explosions.

The story of Rulison properly begins several years ago when Austral Oil Company of Houston became interested in the use of nuclear explosions to stimulate gas reservoirs and began searching for suitable sites. The Rulison Field in western Colorado—which contains an estimated 8 trillion standard cubic feet of gas in place—appeared to be suitable. A series of studies was made, preliminary work was completed and in April, 1968, the AEC assigned the Los Alamos Scientific Laboratory to support the project. LASL was assigned the key responsibility of providing the nuclear device and firing it.

Detonation was set for May 22, 1969. However, in early May it was announced that it would have to be rescheduled for September. Among the reasons cited were: "Heavy snow conditions continue to exist in some areas around the Rulison site; these conditions have made it impossible to conduct field studies on reservoirs on Battlement Mesa and numerous small dam structures at higher elevations in the area. Also, the late spring thaws are resulting in a condition where slopes are less stable and landslides and rockslides are more likely."

Thus, a new readiness date of Sept. 4 was set.

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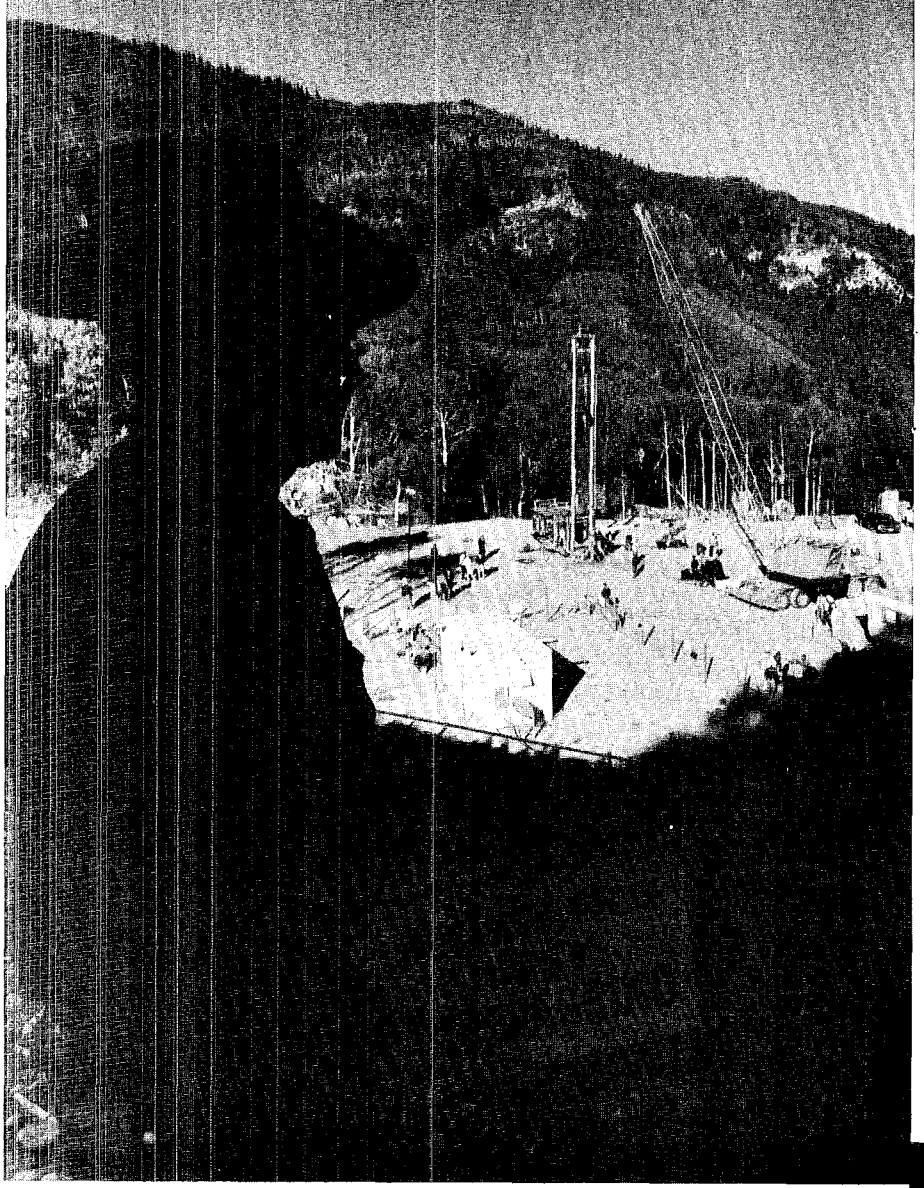
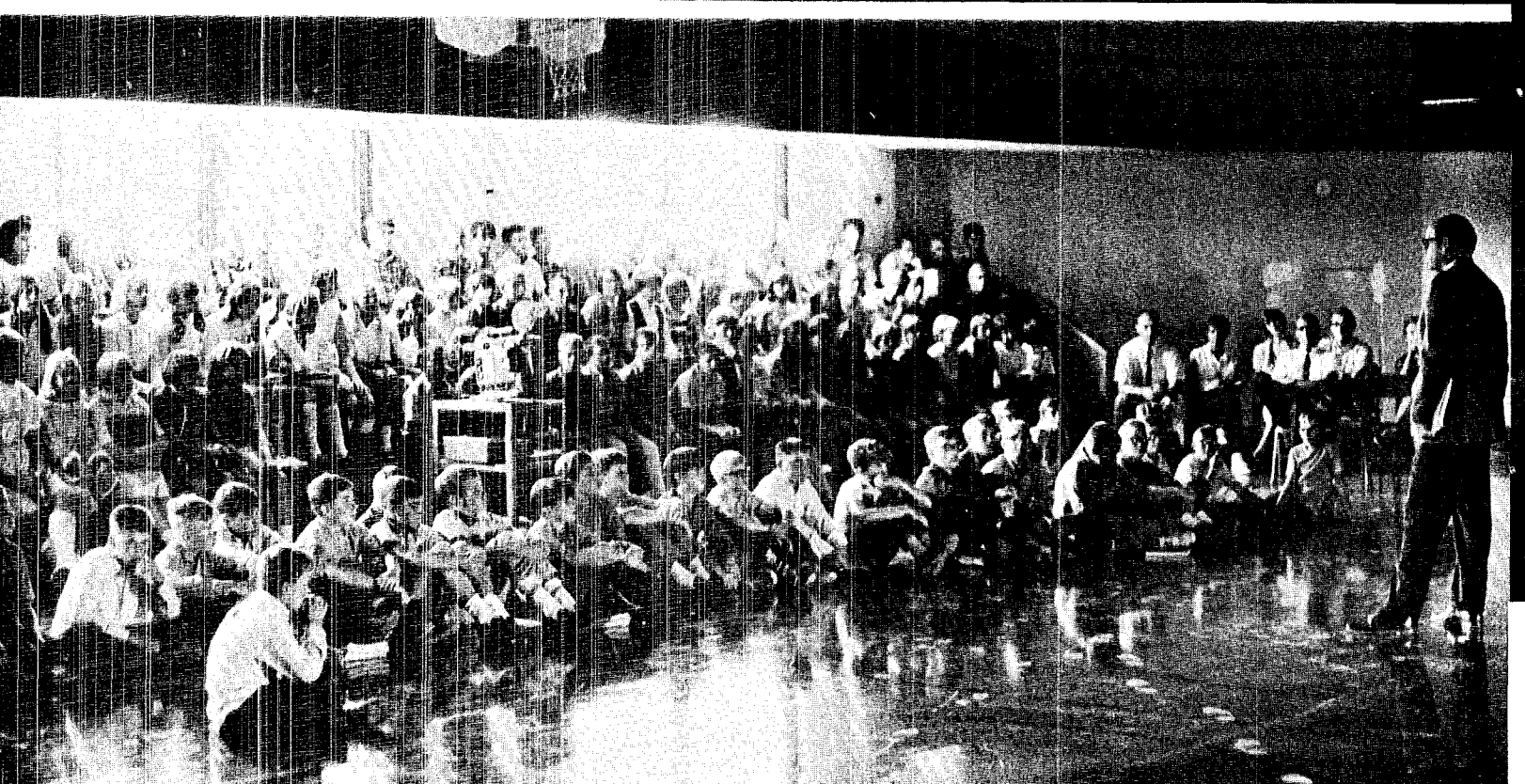


Right, Claude Hayward watches preparatory operations at ground zero. The Rulison Project was staged on a part of his 331 acres on Battlement Mesa. Below, the AEC's Dave Jackson explains the project to junior high school students in Rifle, Colo.



The Rulison Project

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Work continued throughout the summer and in early August members of LASL's permanent site contingent again packed their bags for the trip to Colorado.

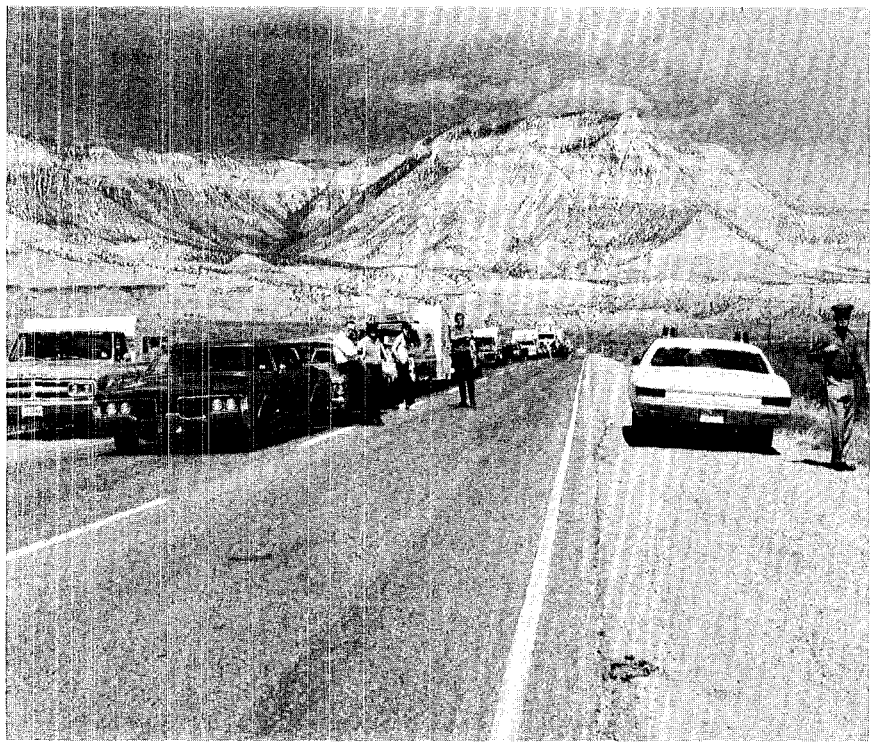
The nuclear device was shipped the second week in August and was inserted into the hole on Aug. 14. The insertion was witnessed by a large body of news media people and other observers.

A number of public meetings to explain the project had been conducted at various communities in the Rulison area in the spring and these meetings were resumed in August. Lee Aamodt, J-DOT, LASL's representative on the briefing panel, explained the nuclear phenomenology (what would happen 8,430 feet underground when the nuclear explosive was detonated).

The majority of the people attending these meetings appeared to be in favor of the project although there were some who were apprehensive. Most of the apprehension, logically enough, rested with the unknown. . . they didn't really understand what the project was or what was likely to happen. It was for this reason the briefings were scheduled. Every possible detail was explained to the area's residents and most of them left the meetings with a greater degree of confidence.

Most residents near the Rulison site remained neutral or actively supported the experiment. As shot time approached, several groups from eastern Colorado went to Federal and state courts with requests for injunctions against it. When these were denied by the Circuit court, after appeals from the lower courts, one group appealed to several Supreme court judges, but they declined to act.

Approximately one month prior to the scheduled shot date a Rulison information office was opened in a trailer in Grand Valley—the nearest community to the detonation site. Hundreds of brochures, pamphlets and handouts on the project were distributed from this office to people who dropped in with questions. In addition, its staff fielded hundreds of questions from all aspects of the news media both in person and by telephone.



Travelers in the area were stopped at roadblocks 90 minutes prior to detonation until it was determined, after the shot, that roads were clear.

Project officials realized early in the planning for Rulison that the shot could trigger landslides or rockfalls onto highways. A series of roadblocks was established to be set up from about 90 minutes prior to shot time until all roads were clear. These roadblocks were manned by the Colorado Highway Patrol, sheriff's deputies, and members of a sheriff's posse as well as other law enforcement agencies in the area.

The U.S. Public Health Service contacted all families living near ground zero and made arrangements for them to either evacuate their homes on shot day or to have a Health Service monitor stay with them until after the shot. Arrangements were also made for the gas and electricity to be turned off before the shot and to be tested after the shot prior to reactivating them.

Residents in the small farming community of Grand Valley were asked to be outside their homes and away from structures at shot time.

Miners working in the mines of western Colorado, hunters, fishermen and other persons in the area were advised of the proper safety precautions.

Homeowners in the area of the detonation were also advised of certain steps they should take to prevent damage to knick-knacks on shelves, canned goods in jars, and other fragile items. Most of the damage was expected to be limited to broken windows, cracked plaster and damaged chimneys—and was. However, it was announced that a claims office would be opened in Grand Valley to settle damage claims quickly and with a minimum of delay.

Austral Oil Company assumed responsibility for the first $10,000 in damages. After that amount is spent, additional valid claims will be settled administratively by the AEC up to a limit of $5,000 each.

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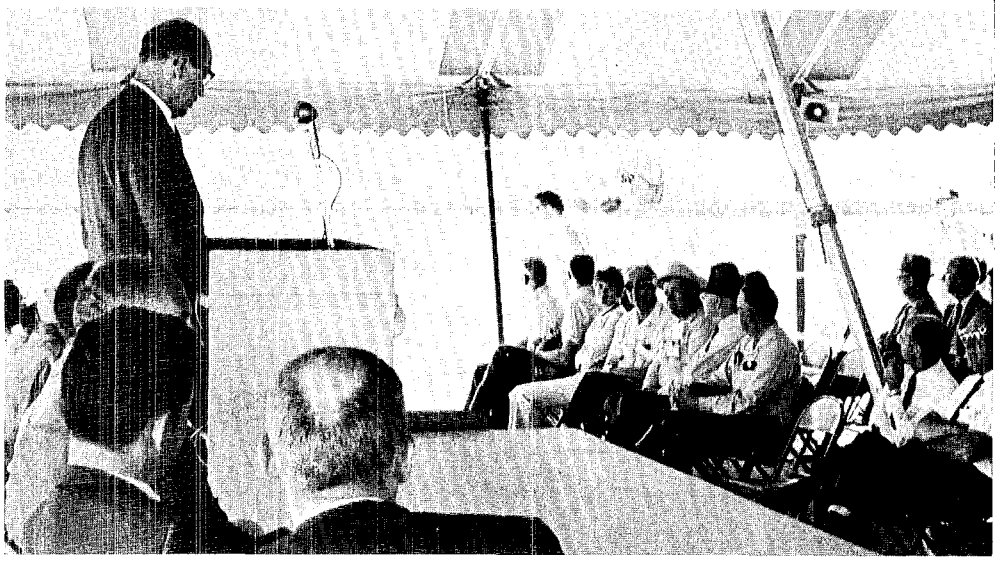
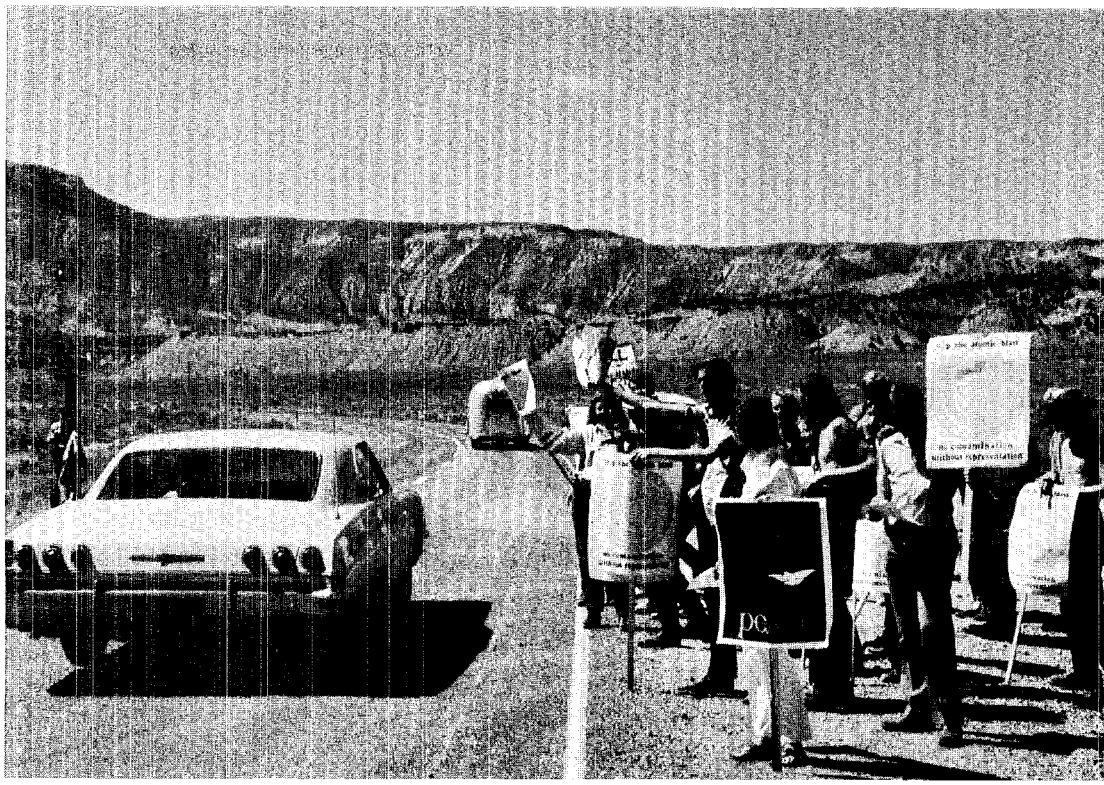


Right, Austral's Will Frank briefs official observers and members of the news media in the large tent at the observer area, six and a half miles from ground zero. Below, D-8's Ivan Worthington, with camera, leaps from a car at the firing-point roadblock to photograph a rockslide, upper left, started by shockwave from the detonation of the Rulison device.



Protesters of the Rulison shot hand out literature on the highway near the observer-site tent.

The Rulison Project

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Those in excess of $5,000 will be referred through appropriate channels to the U.S. Congress for legislative action to authorize payment.

The Price-Anderson Act provides for the possible payment of up to $500 million in total damages.

Registration of official observers and members of the news media began on D-2 (D-Day minus two). More than 600 had registered by the night before the scheduled shot day of Sept. 4. Then it happened. Postponement.

Project officials had stated since the beginning that winds had to be blowing in a certain direction—out of the northwest—and the shot would not go off on schedule unless the winds were right. This was in line with the maximum safety precautions which provided that in the highly unlikely event of an accidental venting, the winds must blow in the direction of minimum population.

So the shot was postponed for at least 24 hours in the hopes there would be a favorable change in the weather. There wasn't, or at least not enough, and the shot was postponed again. Twice-daily weather briefings were held in the morning and the evening but the situation failed to improve until the night of Sept. 9 when the word was "go" for the next day. By this time hundreds of the observers had left and the attendance was estimated at about 100.

The morning of shot day the weather was perfect. Families were evacuated, road blocks were established and buses loaded with observers left Grand Junction for the observation area.

"7. . . . 6. . . . 5. . ."

The countdown voice boomed over car radios, portables and radios in homes. Several commercial radio stations in the area were carrying the countdown live, a fact well-publicized in advance.

"4. . . . 3. . . . 2. . ."

All eyes turned towards Battlement Mesa and the watchers unconsciously braced themselves for the expected ground motion. Several persons placed paper cups of coffee or water on the ground to see if they would spill when the detonation set the earth shivering.

"1. . . . FIRE—"

The earth trembled—later reported equal to 5.5 on the Richter scale—and a sense of relief was felt by all participants. There was no venting of radioactivity although several rockslides were started on Battlement Mesa which raised large clouds of dust that many people thought at first was venting. Damage was minor, just as had been expected. Ironically, bricks from a chimney on the office housing the claims bureau were some of the first to fall.

The telephone system in and out of Grand Valley was fouled up for a while but was soon corrected. The roadblocks were lifted shortly after a sweep was made of the roads, during which no major obstacles were encountered.

A postshot briefing for the observers was held before they boarded the buses for the return trip to Grand Junction.

The Rulison detonation is now history.

LASL Receives a Milligram of Californium-252

A group of scientists at the Los Alamos Scientific Laboratory has received about a milligram of californium-252, a man-made radioisotope which is an extremely intense source of neutrons and is available in very limited quantities.

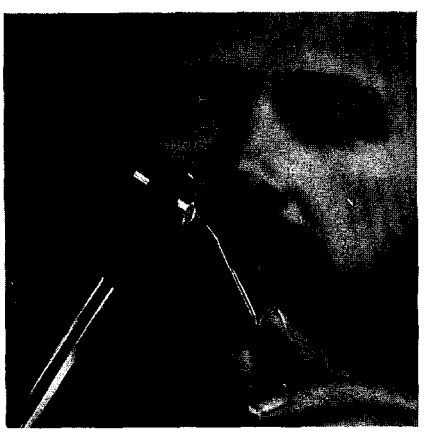
N-6, LASL's nuclear safeguards group headed by G. Robert Keepin, recently began a series of tests to determine the isotope's capabilities as a neutron source for nondestructive assay of nuclear materials. In these tests, neutrons from the spontaneous fission of californium are being used to induce fissions in samples being assayed. The fissions produced in the samples give off delayed neutrons whose properties are characteristic of the materials being assayed.

Two other groups at the Laboratory that will conduct tests with the material are GMX-1 and J-11. GMX-1 will use the isotope in neutron radiography work, and J-11 will utilize it in activation analysis.

The isotope has a half life of 2.65 years. The californium acquired by the Laboratory was obtained under the Atomic Energy Commission's Market Evaluation Program to find practical applications for it.

It was delivered to CMB-14 in a heavily-shielded 6x11-foot shipping container which weighed nearly 12 tons, although the size of the capsule containing it was only ⅜x⅞-inches. At the time of delivery, in mid-July, the capsule contained 930 micrograms of californium-252.

Under present availability standards the isotope is valued at $1,000 per microgram. At the time it was made at the Transuranium Facility at the Oak Ridge National Laboratory, the sample acquired by LASL was three times larger than any made previously and represented 20 per cent of the available californium-252 in the free world.



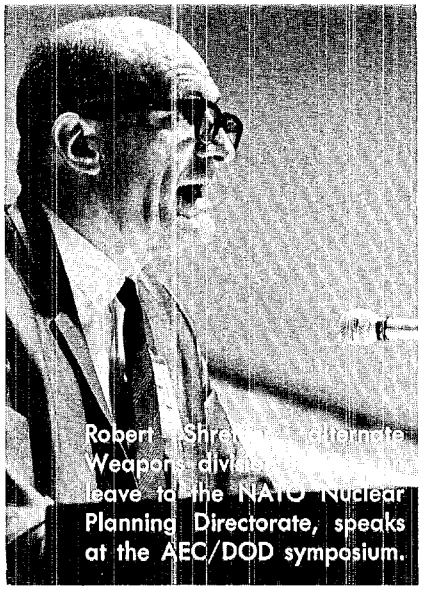
A simulation of the capsule in which about a milligram of Californium-252 was received by LASL is shown by Howard Menlove, N-6.

Californium-252 is one of 11 radioisotopes of californium that has been synthesized and identified. Mass numbers of the isotopes range from 244 through 254. The first to be discovered was californium-245. It was produced in 1950 by S. G. Thompson, K. Street, Jr., A. Ghiorso, and G. T. Seaborg, who is currently chairman of the Atomic Energy Commission, at the Radiation Laboratory of the University of California at Berkeley. Californium-252 was first identified in the debris from a thermonuclear test explosion made in 1952. During the explosion, uranium was subjected to such an intense, although short, neutron irradiation that the uranium atoms absorbed many neutrons before decaying by beta emission to form isotopes of higher atomic numbers. Isotopes of curium, berkelium, and californium were found in the debris.

Larger quantities of californium-252 can be synthesized by irradiating plutonium-239 or its transmutation products (plutonium-242, americium-243, and curium-244) with neutrons in a nuclear reactor. Elements of higher atomic numbers are built up by successive neutron captures interspersed with beta decays. Thirteen successive neutrons must be added to each nucleus of plutonium-239 to convert it to californium-252.

The californium received by LASL is presently located in a heavily-shielded hot cell in the Nuclear Safeguards Research laboratory at Ten site.

An AEC-sponsored, international symposium on nuclear safeguards research and development is to be held at the Los Alamos Scientific Laboratory Oct. 27-29. More than 200 representatives of the United States' and foreign nuclear industries are expected to attend and to learn of the new nondestructive assay methods being developed at LASL and elsewhere, and the applications of these methods to safeguards, safety, accountability and quality control problems throughout the nuclear industry.



Robert [illegible] Weapons [illegible] leave to the NATO Nuclear Planning Directorate, speaks at the AEC/DOD symposium.

LASL hosts its largest tactical nuclear weapons

Symposium

See story and photographs on following pages

LASL's W-3 group leader, John E. Dougherty, smiles at a query from the audience, above. Left, General David A. Burchinal, deputy commander in chief, U.S. European Comand, outlines "Qualitative Nuclear Weapons Requirements for Allied Command Europe."

Representatives of defense establishments and nuclear weapons laboratories met at Los Alamos last month to evaluate present technology in the light of this nation's requirements for tactical nuclear weapons.

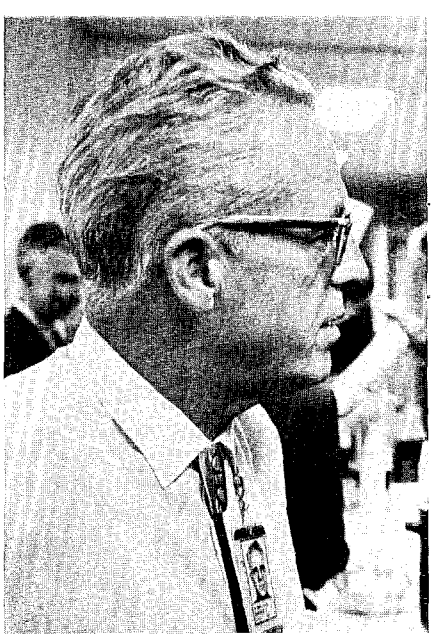
About 600 persons whose influence plays a major role in formulating the United States' nuclear weapons capabilities and policies were in attendance.

The meeting, sponsored by the AEC and DOD, took on the form of a symposium. Two and a half days of the three-day event were taken up by speakers who discussed current capabilities and requirements for the future, thus providing guidelines for AEC laboratories and the defense industry which would be largely responsible for appropriate future technological research and development programs. During the remaining half-day, AEC scientists described advanced weapons technology and a summary panel commented on the proceedings of the meeting. A spirited discussion between the panel and audience concluded the symposium.

Harold Agnew, Weapons division leader at LASL, who has long felt that a get-together such as this would be beneficial for all concerned with nuclear weapons, was responsible for preparing the program. PUB-2, working with W-9, coordinated logistics for the meeting.

The event was the largest of its kind ever held at the Laboratory. The only meetings to compare with it were held in 1963 and 1964. Tactical aspects of the nuclear weapons programs, however, were not included in these events. They were confined primarily to AEC technology.

Above, a summary panel discusses proceedings of the meeting, led by Harold Agnew, Weapons division leader, left. Other members are Congressman Craig Hosmer, member of the Joint Committee on Atomic Energy (JCAE); Admiral James S. Russell (RET); Lieutenant General Austin W. Betts, chief of research and development, Department of the Army; William R. Van Cleave, special assistant to the Assistant Secretary of Defense; and Albert D. Wheelon, vice-president, engineering, Hughes Aircraft. Left, Major General Eugene A. Salet, deputy defense adviser, U.S. Mission to NATO, discusses program with Congressman Chet Holifield, JCAE chairman.



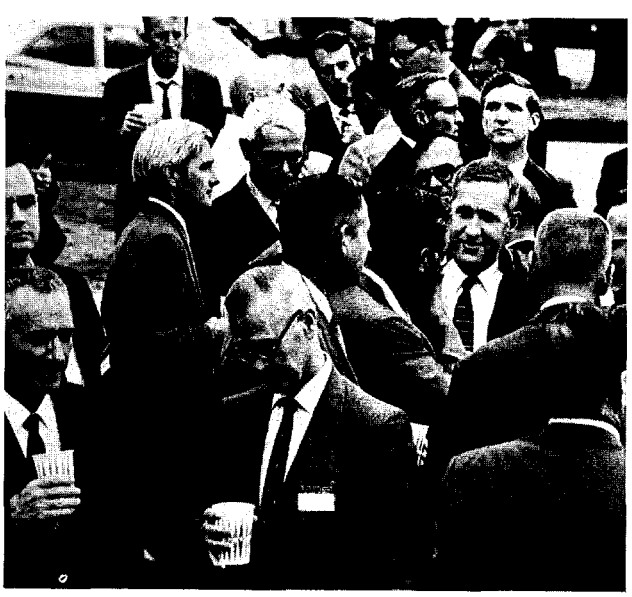
Brigadier General Alvin E. Cowan, assistant commander, Third Armored Division, participated in discussions from the floor as well as being one of the featured speakers.

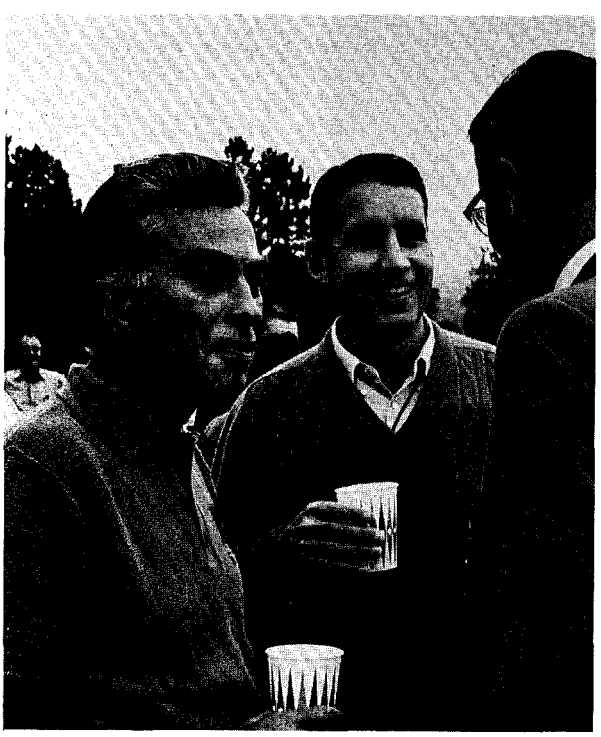
Below, Major General Edward B. Giller, left, assistant manager for military applications, AEC, chatted with Gerald W. Johnson, Gulf General Atomic, center, and Jack Rosen, special assistant to AEC Commissioner Thompson.

Above, speaker Richard L. Garwin, IBM Watson Laboratory, was quizzed by Colonel Thomas M. Love, headquarters, U.S. Air Forces in Europe. Coffee breaks gave old friends, like Raemer E. Schreiber, LASL technical associate director, and Hosmer, left, an opportunity to talk things over.

At a barbecue at the old North Mesa picnic grounds, members of PUB-2, bottom center, help serve the AEC/DOD symposium visitors.

At the picnic grounds Leslie G. Hawkins, LASL's assistant director for financial planning, talks with Lieutenant General Betts. Agnew is at right center.





John A. Hornbeck, president of the Sandia Laboratories, left, talks with M. Carl Walske, a former LASL staff member and currently assistant to the Secretary of Defense. At right is Charles A. McDonald, Jr., Lawrence Radiation Laboratory.

United Fund Drive for $66,000 Begins This Month

The annual Los Alamos United Fund campaign begins this month, aimed at a goal of $66,000. Of the total, $62,750 will be used in direct support of 14 of the participating agencies. The Lassie League, although a participating agency, has again requested no funds for this year. An emergency reserve of $3,250 is included in the goal to help member agencies meet unforeseen expenses such as those which arise from disasters, and to assist agencies which unexpectedly lose other sources of income.

Most of the funds collected in the campaign are ear-marked for activities in Los Alamos and the immediate surrounding area.

Citizens will be contacted at their places of employment with the exception of the retired segment of the population which will be solicited by Walt Scherling. B. L. (Bun) Ryan will conduct the campaign at the Laboratory; Roland Pettitt, Zia Company; Jim Dominic, AEC and other government agencies; Lou Pierotti, business community; Ed Spence, schools; Gene Turner, Los Alamos County; Dr. Ralph Nelson, Medical Center.

Both local banks have again agreed to accept monthly bank deductions as a way for citizens to contribute to the United Fund. Contributions can also be made in cash or on the installment plan.

Elbert Bennett, J-14, president of the Board of Trustees, and D. C. (Hank) Winburn, CMB-3, chairman of the Campaign Advisory Committee, noted the "fair share" guide for contributions, used in previous campaigns is still current. By this formula, United Fund officials suggest a contribution that is equivalent to one hour per month (equal to about 6/10 of one per cent of gross annual salary). For example, if a person's hourly wage is $3, a contribution of $36 would meet this formula. For a person whose annual salary is $12,000, a fair share amount would be $72.

Among agencies to receive United Fund support is the New Mexico Council of the National Council on Crime and Delinquency which was admitted to membership this year. The Council, which has local membership, is a non-profit, private agency which works to control and prevent crime and delinquency by tapping both professional expertise and citizen action.

Funds approved for agencies by the Board of Trustees of the Los Alamos United Fund, Inc., range from $550 to $9,800. The Babe Ruth League is to receive $1,900; Boy Scouts, $9,800; Cancer Clinic, $6,800; Family Council, $8,000; Girl Scouts, $9,800; Heart Association, $4,000; Little League, $900; New Mexico Council of the National Council on Crime and Delinquency, $1,000; Association for the Physically Handicapped, $550; Red Cross, $6,500; Association for Retarded Children, $4,700; Salvation Army, $6,400; U.S.O. (United Services Organization), $700; Youth Center, $1,700.

Five Years Under Los Alamos' 20-year Comprehensive Plan

By Barbara Storms

In the summer of 1964, after more than a year of research, study and discussion, Los Alamos County adopted a Comprehensive Plan and a related zoning ordinance, proposed for the community by the planning consultant firm of Leo A. Daly Company. The Daly Company was hired by the Los Alamos Planning Commission which was created in 1962 when transfer of the community from Federal to private ownership became a certainty.

The Comprehensive Plan was designed as a long-range statement of policy, providing for coordinated development of all elements of the community, to create a more satisfying and efficient environment in which its people could live, work and play. It indicates, very generally, how public and private property should be utilized, designates the system of all major routes of transportation, specifies locations of all facilities which will provide service to the community, and defines the financial system for carrying out the objectives of the plan.

Because it is long-range (looking ahead to 1985) and optimistic (geared to a maximum population of 30,800 people), the Plan is considered as an overall guide—rigid in basic principles but flexible in detail—for all decisions affecting change in the community. Its proposals are to be executed only if and when the population and the needs of the community warrant them.

This year the Planning Commission has found itself engaged in its first major conflict with the Plan and, as a result, has begun a series of public hearings to review its current status. "The Atom," which published a condensed version of the 20-year plan in 1964, now reviews it after its first five years.

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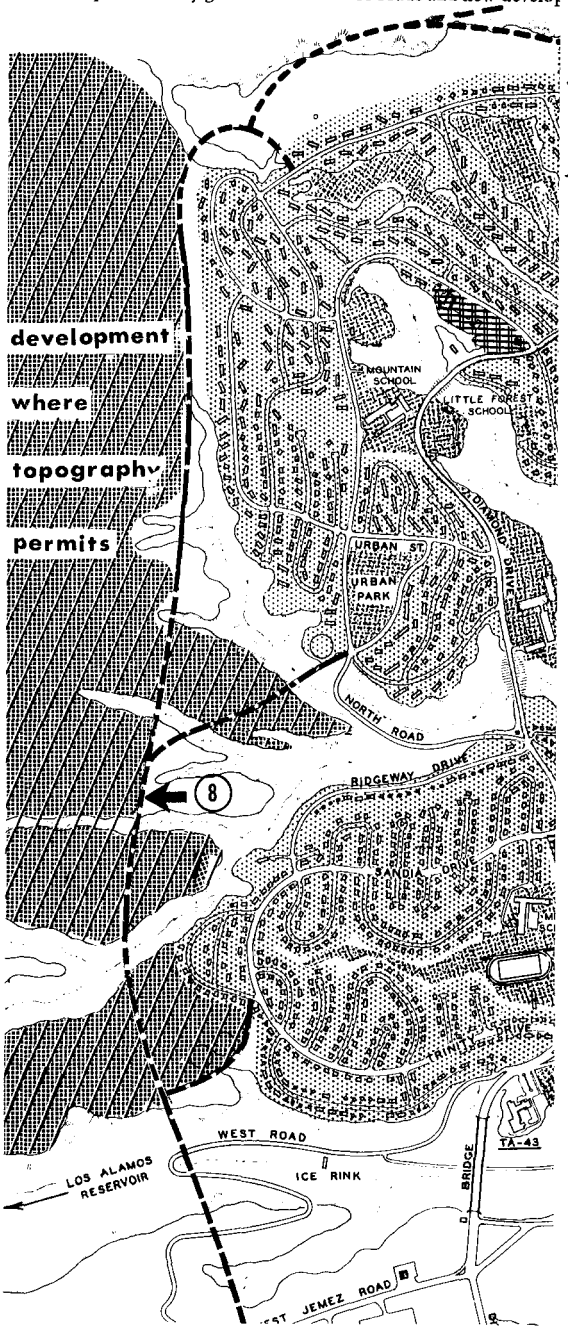
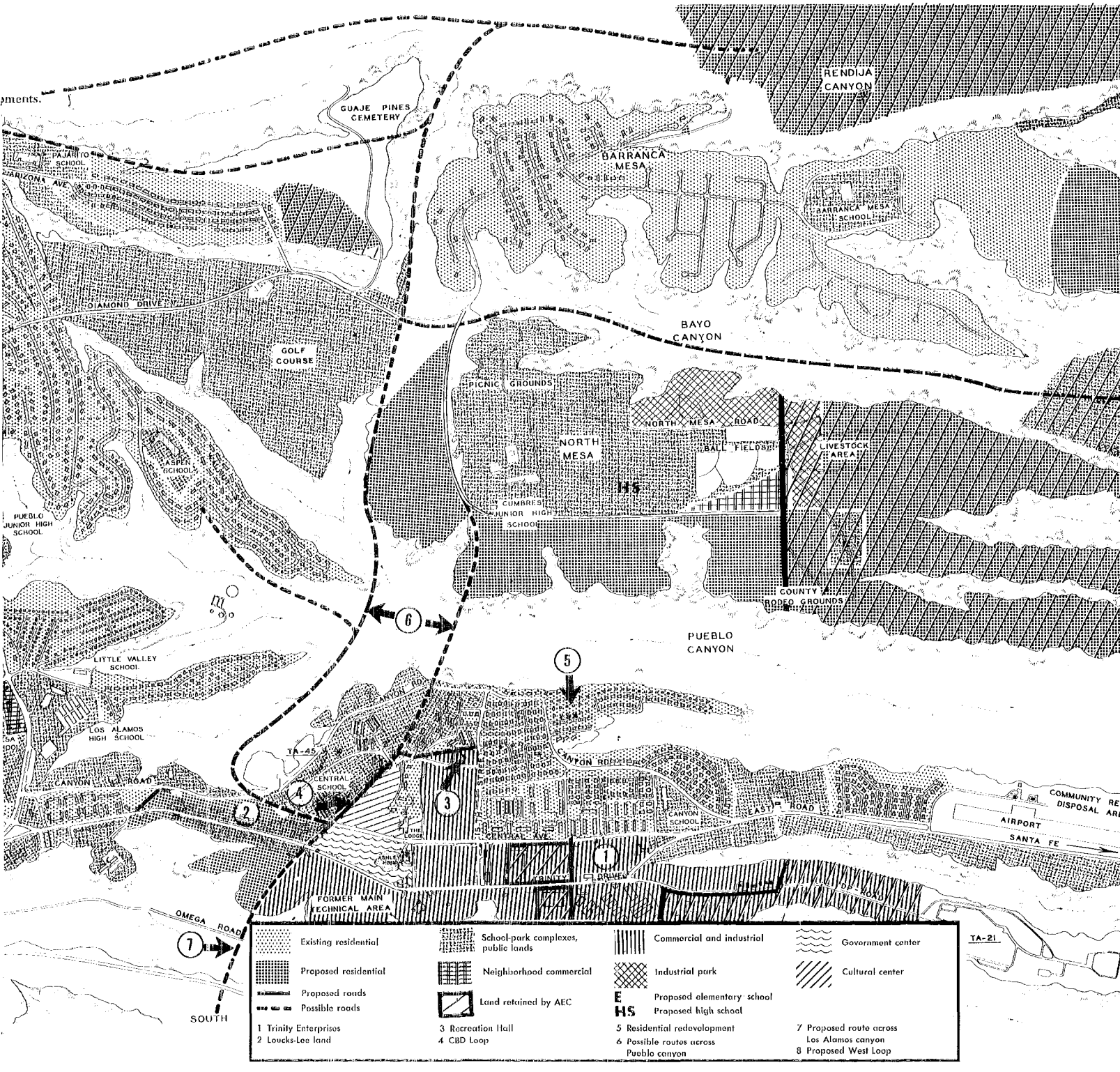
THE PLAN

Map shows only general locations for roads and new develop




GUAJE PINES CEMETERY
RENDIJA CANYON
BARRANCA MESA
BARRANCA MESA SCHOOL
PAJARITO SCHOOL
ARIZONA AVE.
DIAMOND DRIVE
GOLF COURSE
BAYO CANYON
PICNIC GROUNDS
NORTH MESA ROAD
BALL FIELDS
LIVESTOCK AREA
NORTH MESA
HS
ASPEN SCHOOL
PUEBLO JUNIOR HIGH SCHOOL
CUMBRES JUNIOR HIGH SCHOOL
COUNTY RODEO GROUNDS
PUEBLO CANYON
LITTLE VALLEY SCHOOL
LOS ALAMOS HIGH SCHOOL
TA-45
CENTRAL SCHOOL
CANYON ROAD
CENTRAL AVE.
THE LODGE
ASHLEY POND
TRINITY DRIVE
FORMER MAIN TECHNICAL AREA
OMEGA ROAD
SOUTH
EAST ROAD
CANYON SCHOOL
COMMUNITY RE DISPOSAL ARI
AIRPORT
SANTA FE
TA-21
Existing residential
Proposed residential
Proposed roads
Possible roads
School-park complexes, public lands
Neighborhood commercial
Land retained by AEC
Commercial and industrial
Industrial park
E Proposed elementary school
HS Proposed high school
Government center
Cultural center
1 Trinity Enterprises
2 Loucks-Lee land
3 Recreation Hall
4 CBD Loop
5 Residential redevelopment
6 Possible routes across Pueblo canyon
7 Proposed route across Los Alamos canyon
8 Proposed West Loop

Commercial Growth

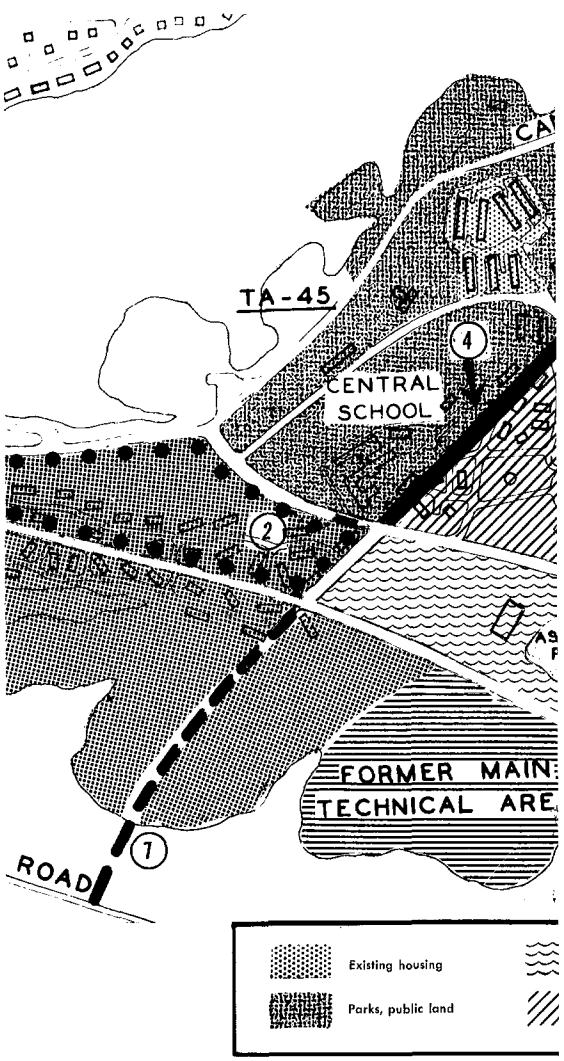
Commission upholds concept of plan but not without some sticky problems

After months of discussion and consideration, the Los Alamos Planning Commission recently recommended to the County Council that one parcel of downtown property be re-zoned for core commercial activity and another parcel retain its zoning for apartment houses. In so doing, the Planning Commission retained the commercial growth concept outlined in the Comprehensive Plan.

Following the land use concept favored in 1964 for developing a strong central business district, the Comprehensive Plan recommended that the Community Center be strengthened as the heart of business activity. To accomplish this, the Plan included a core business district expanding north of Nectar street and the Recreation Hall, south to Trinity drive, bounded on the west by 20th street and on the east by 15th street. Eventually, as the population grew, the commercial area would extend eastward from 15th street, filling the space between Trinity and Central to the point where the two streets meet. The central core district would be further strengthened by a Central Business District Loop road that would surround it.

But the plan ran into trouble as soon as commercial land was offered for sale. First, the AEC held on to its landscaped Community Center while selling all of its surrounding commercial property, drawing the center of business activity to the south side of Central. After a lengthy controversy over redesigning the Community Center, it was finally sold less than a year ago. Planners feel eight months is too short a time for the new owners to have brought about business-stimulating changes in the operation of the center, particularly since they are encumbered by long-term leases awarded to resident tenants by the AEC just before the sale.

Meanwhile, with the community clamoring for more shopping facilities on the Hill, the Planning Commission felt its only alternative was to increase available store space by



approving the request of Trinity Enterprises to re-zone eight acres behind the police station, between Trinity and Central, from C-2 (service commercial) to C-4 (core commercial). Though now separated from the rest of the commercial area by a strip of land occupied by the Zia Motor Pool, which the AEC will retain for about eight years, Trinity Enterprises has a big part of the east-west portion of land that was eventually to have been included in the downtown business district.

On the other hand, the request of Drs. Rufus Lee and James Loucks to re-zone five acres of their land just west of the County building along Trinity drive from R-3 (apartment houses) to commercial was rejected. The Commission felt the R-3 land was badly needed, would be difficult to replace and that enough commercial land was already available.

But size and direction are only two of the problems to be faced in planning the central business district. Two proposals to unify and strengthen the spreading commercial area are expected to be given top priority on the Planning Commission agenda in the near future.

The Comprehensive Plan proposed construction of a Central Business District Loop road, a portion of which was completed this summer. The divided thoroughfare, as planned, leaves Trinity at 26th street. It joins Central, then loops around Bathtub Row to head east from just north of Nectar street behind the Recreation Hall. It then rejoins Trinity by way of 15th street. The road was designed to enclose the central business district, provide easy movement of traffic around it, and to open up commercial land north of Nectar street, once the Recreation Hall is abandoned. Although the right-of-way for this portion of the Loop already has been dedicated, both the road and the use of the land between its northern leg and Nectar street are expected to be controversial. During the original planning five years ago residents of adjacent neighborhoods strongly protested the loss of what is now a park and ball field to commercial expansion.

To further unify the core district, the Planning Commission will consider the possibility of transform-

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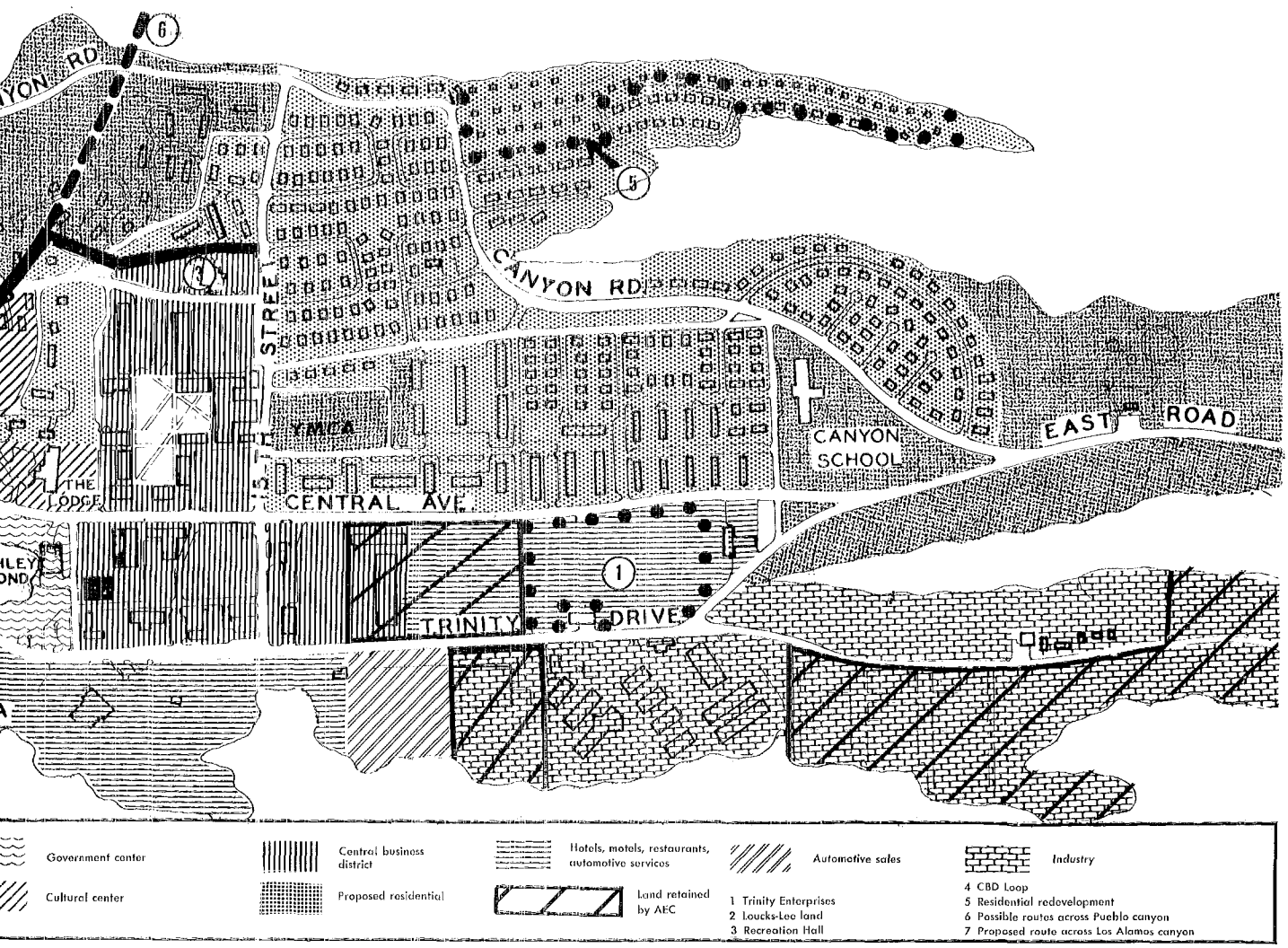

Commercial Growth

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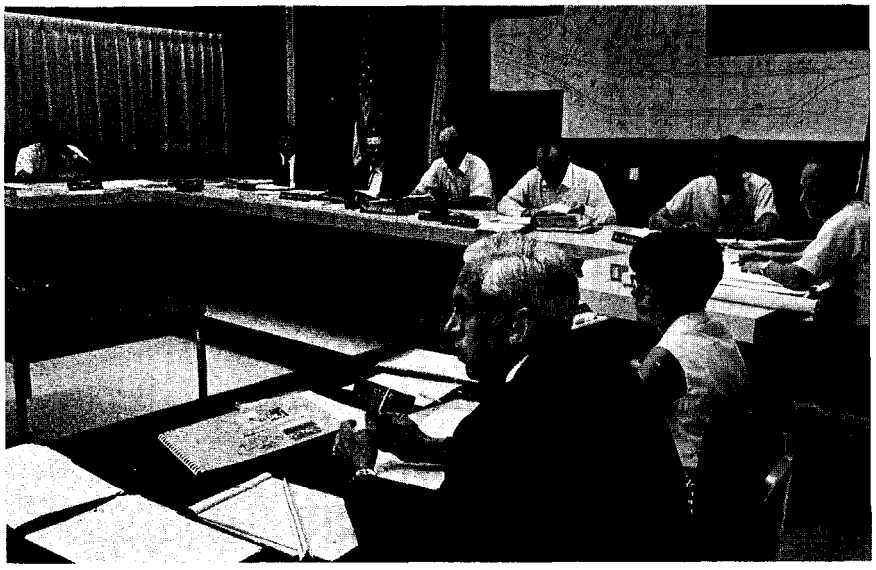
ing Central avenue between the CBD Loop and 15th street into a shopping mall or parking area that would provide pedestrians with free and easy access to both sides of Central. Such a plan, however, would depend upon completion of the CBD Loop.

Another problem is land shortage for the types of commercial activities not allowed in the core district.

To give the community a broader economic base, the Comprehensive Plan recommended the encouragement of new industries in Los Alamos. These employment centers are divided into two classifications with a different type of location assigned to each. The industrial classification, called M-2 in the zoning ordinance, includes manufacturing, compounding and assembly plants, warehouses, suppliers and contractors. The latter three were to be located along Trinity drive and DP road, keeping that area much the same as it has been; heavier industries were to be located in Pueblo canyon and accessible from Bayo canyon. The AEC, however, has not released land in either canyon. It has also retained possession of the last remaining vacant land on DP road, about 20 acres, formerly occupied by a trailer park, and a section along Trinity occupied by Zia buildings.

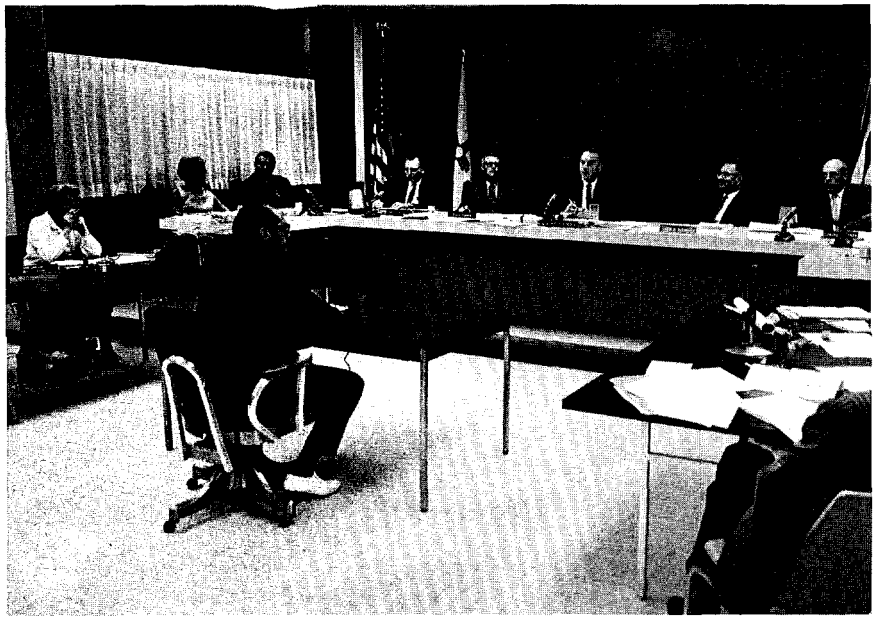
Also still in the hands of the Federal government are some 120 acres on the north side of State Road 4 at White Rock which was designated in the Plan for use by research and development firms in an industrial park. Another industrial park site on North Mesa has been sold but is not served by utilities. To date, EG&G is the only R&D firm indicating interest in locating in Los Alamos.

Soon to be studied by the Planning Commission is a proposal to overcome the imbalance of types of commercial land by combining parts of five commercial and industrial zones into a planned district with broader uses. The Commission will also investigate the need for changes in the zoning designation of White Rock's 38 acres of commercial property. Planning commissioners have suggested that such large acreage may be out of proportion for neighborhood commercial use and might better be re-zoned as another core commercial district.



The County Planning Commission has so far retained the commercial growth concept outlined in the Comprehensive Plan. Planning commissioners, left to right are Marvin Tinkle, Robert Emigh, Richard Gentry, Chairman Robert Warner, William Wood, Bill Jack Rodgers, and Richard Malenfant. In foreground is County Planner George Brenner and his secretary, Marilyn Edwards.

The Los Alamos County council ultimately makes the decisions that affects the direction of the community. At one of its meetings, the council hears testimony from the Rev. Howard Reynolds, foreground. At left is Mrs. Ann Dinegar, county clerk who serves as secretary to the council. Members are Mrs. Carol Roberts, Wally Geno, Guy Elliott, Otis Farmer, Chairman Del Sundberg, John Russell, Ed Layman, and Neil Seeley.



Cars sweep over the crest of the incline on Diamond drive at the artery's intersection with Arkansas avenue. The dangerous intersection has been tagged as one in need of improvements in the future.

The Traffic

Keying major road improvements to the shift by population

Probably the second biggest problem, actually inseparable from most other aspects of community planning, is the movement of traffic in and around the rugged terrain of Los Alamos.

Despite vast improvements over the past five years, planners believe there is still room for improvement on Diamond drive.

Traffic surveys made for the 1964 Plan documented what every resident north of Sandia drive knew only too well: Diamond drive, upon which 60% of the population was dependent, was a monumental, frustrating bottleneck. An average daily traffic of 12,000 cars between North road and Pueblo school, and 11,500 cars at the bridge approach to South Mesa, inched along at a maddening nine miles per hour during peak hours. The average overall speed was 18 miles per hour. It was not surprising, then, that relief measures, designed to increase Diamond capacity to 13,000 cars at 30 mph, were underway before the

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The Traffic

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ink was dry on the Comprehensive Plan.

Bridge capacity was increased to 30,000 cars by widening it to four lanes with a three-and-one directional system for peak hours. Diamond drive was widened between Sandia drive and the Barranca Mesa intersection. Overpasses were built across Diamond at the high school and Pueblo junior high, eliminating the 15 mph school-zone speed limit.

Additional development of Barranca Mesa and eventual development of North Mesa will further tax the capacity of Diamond drive. County Planner George Brenner foresees, within the next couple of years, additional widening of the street between the Pueblo canyon fill and Trinity. He also pinpointed the dangerous Diamond-Arkansas intersection as an area in need of improvement.

Looking at the problem from a more long-range view, planning commissioners feel major road improvements in the future should be keyed to the recent shift by population to the south and east and the shift by the Laboratory to the east (LAMPF).

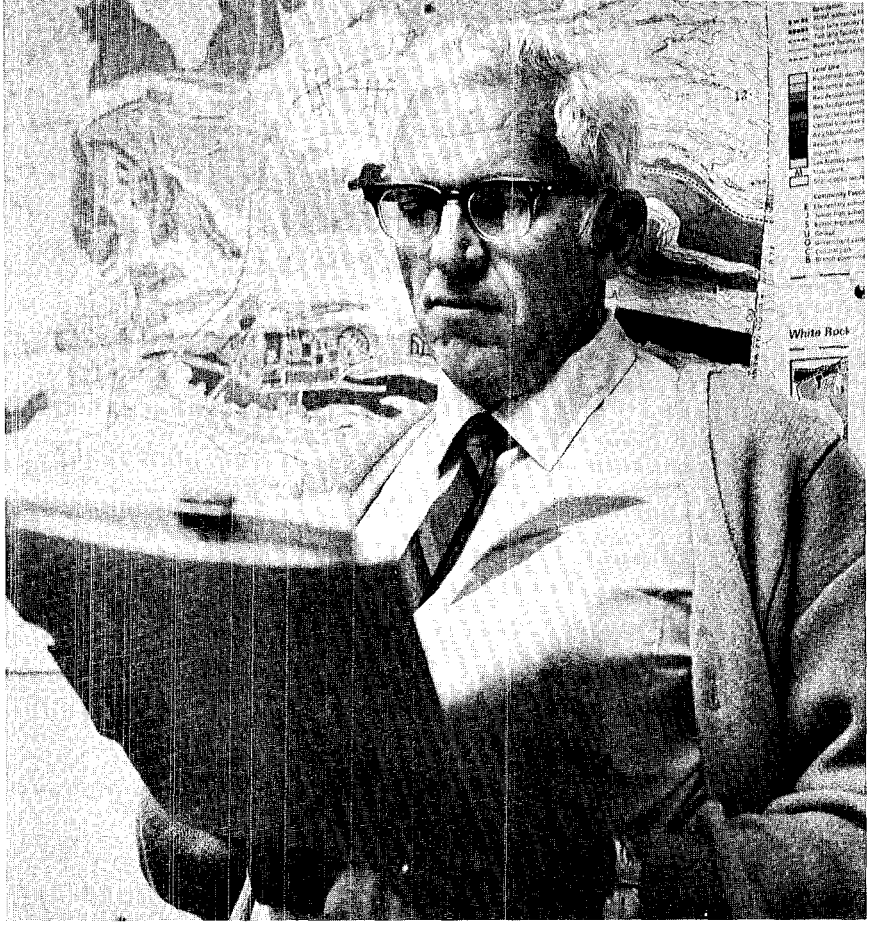
With an eye toward this shift, the Planning Commission will soon consider the financing and timing of construction of bridges across Los Alamos and Pueblo canyons. As proposed in the Plan, traffic could be carried from Diamond drive in the golf course/Barranca Mesa area across Pueblo canyon via fill or bridge to the CBD Loop, then to Jemez and Pajarito roads via a bridge across Los Alamos canyon.

As another possibility, some planning commissioners feel the County should consider a major redesigning of the entire Diamond-Trinity-bridge bottleneck—possibly to a freeway-type interchange with varying levels to provide traffic with easy access to roads in any of several directions.

Either of these proposals, if carried out, would diminish the need for the proposed West Loop road although it remains within the realm of possibility. Proposed to speed North Community and Western Area traffic to the South Mesa tech area, avoiding both Diamond drive and the bridge, this four-lane artery would begin at the intersection of Yucca and Arizona, loop northwest, then turn south to skirt the westernmost fringes of town, cross Los Alamos canyon on a bridge or fill and join Jemez road west of the LASL Administration building. Access roads would feed the loop from Trinity in the Western Area and from North road in the vicinity of the Pipeline road. The planners estimated the road would handle about 6,000 cars a day at an average speed of 40 mph.

Construction of the West Loop road would open up land immediately west of Western Area for about 200 houses although cost of delivering utilities to the shallow, rugged region might be prohibitive.

Also proposed in the Plan as a Diamond drive relief measure, to be done as early as 1970, is a road through Bayo canyon to State Road 4 to give most of the northern residential areas a direct route off the Hill. This road would open new recreation areas which would make possible the relocation of the stables and rodeo grounds, making North Mesa available for housing development. But this proposal has now dropped low on the list of possibilities. From the start, the relocation of the stables and rodeo grounds has been sorely controversial and, to date, the AEC has retained this land and that in Bayo canyon.



County Planner George Brenner studies the traffic circulation plan.

Housing

A 25-year battle against shortage continues unabated

Even though housing is now privately owned and home construction is booming, Los Alamos' 25-year battle against the housing shortage continues unabated.

At least two real estate dealers agree that "it's as bad as it's ever been" and foresee no improvement in the immediate future.

"The population has grown by 3,000 people in the last three years —from 13,500 to 16,500," one dealer said. "The building just can't keep up with it."

The increase is attributed to new Laboratory employees who have been arriving in large numbers, newly-arrived employees of EG&G, people moving up from the Valley and Santa Fe, and the increasing numbers of retired people who remain or move in. The tight money market and increased interest rates are expected to further complicate the problem.

In 1964 the Daly Company keyed the housing problem to the imbalance of single houses to the total number of units, pointing out that Los Alamos had 39.5% single units, 22.5% duplexes and 36.1% multi-family units when the figures should be more like 83% single, 5.5% duplex and 10.5% multi-family. "Unless emphasis is shifted more to single family construction the current housing shortage will be aggravated," the planners said.

If the rate of housing construction over the past years has not relieved the shortage, it has surely shifted the emphasis. Between 100 and 125 new homes are being built each year in Los Alamos, almost all of them singles, but over the same

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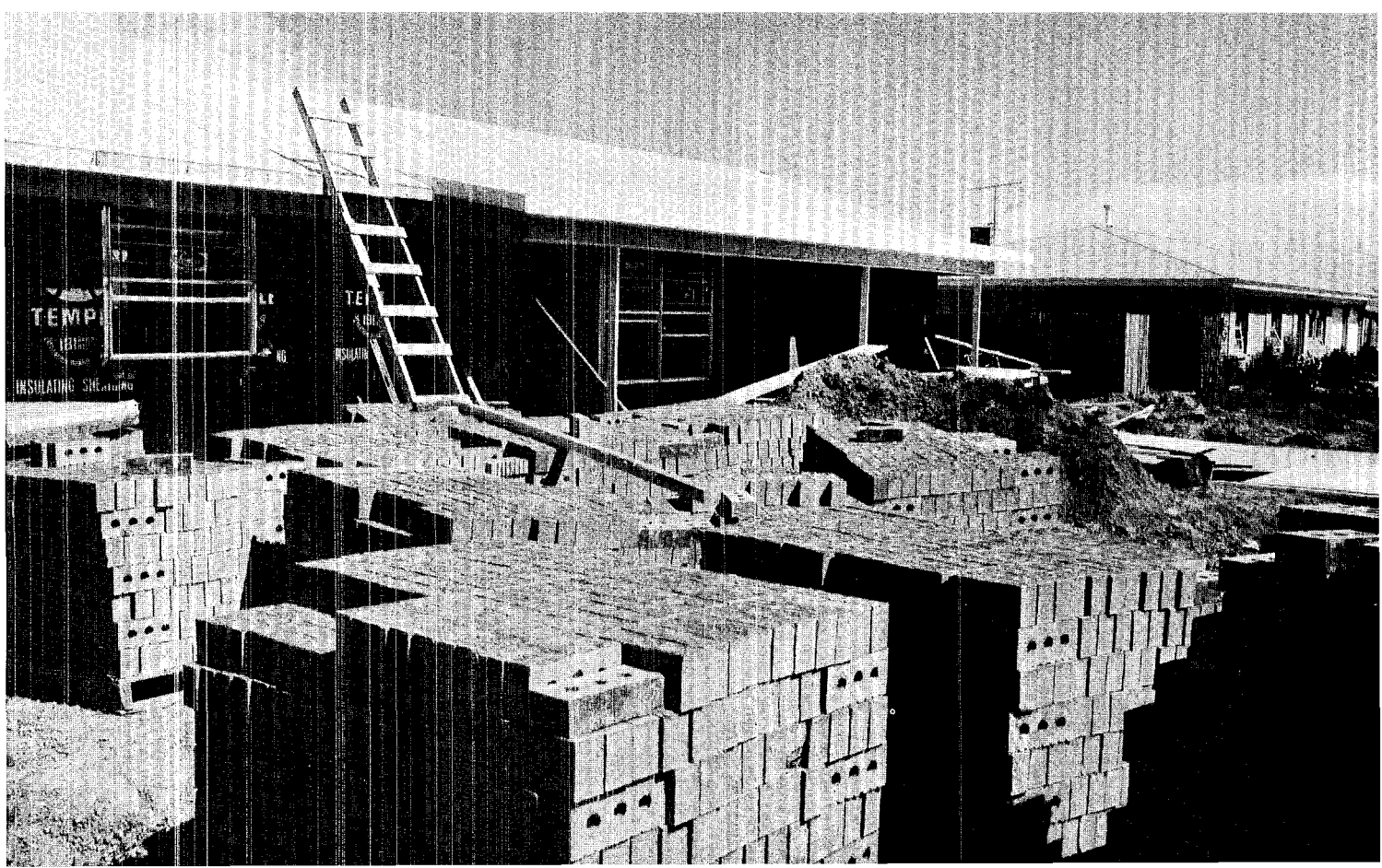

Construction progresses on a new home in White Rock. The population of White Rock and Pajarito Acres can double before building-land runs out.

Housing . . .

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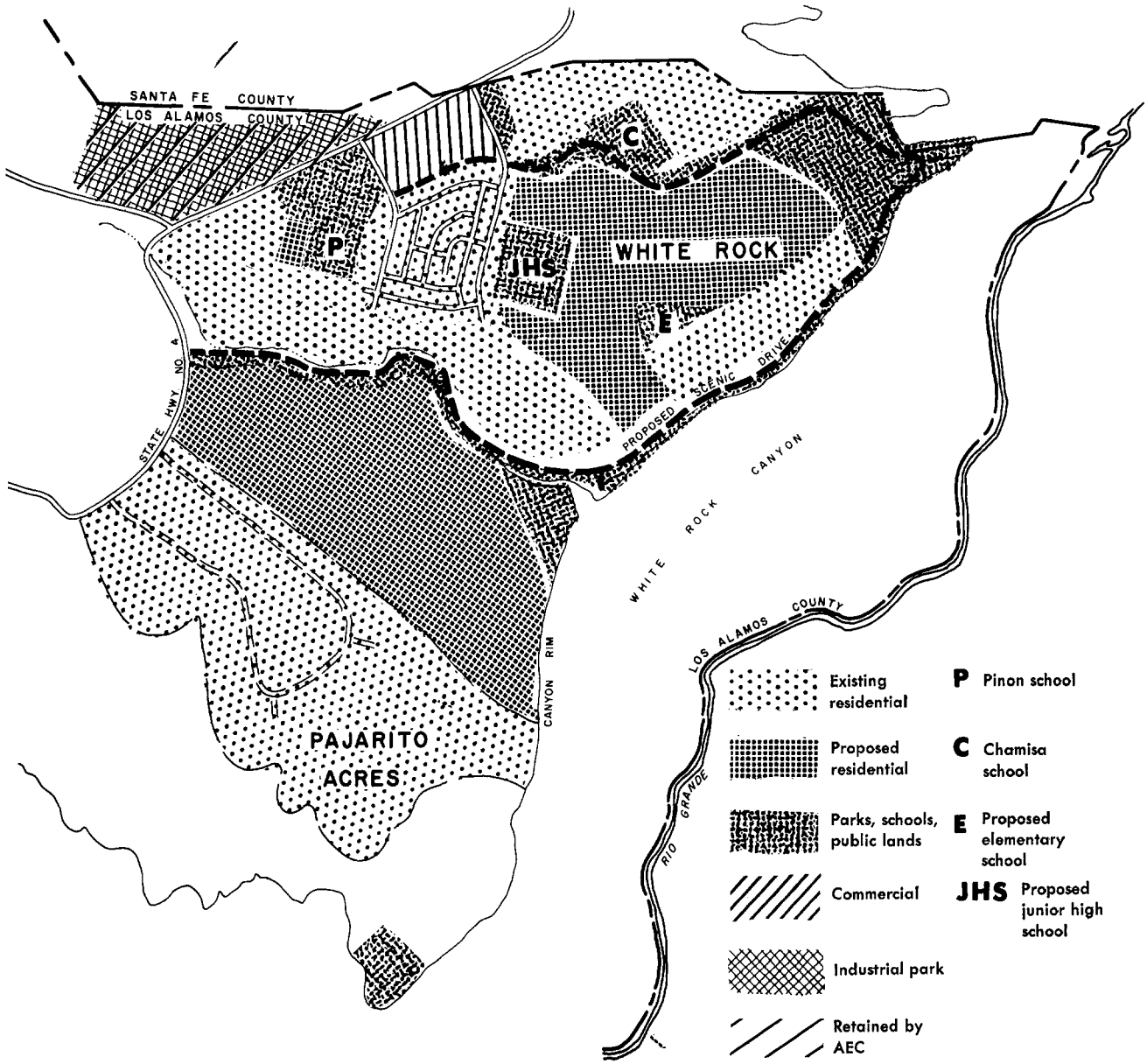
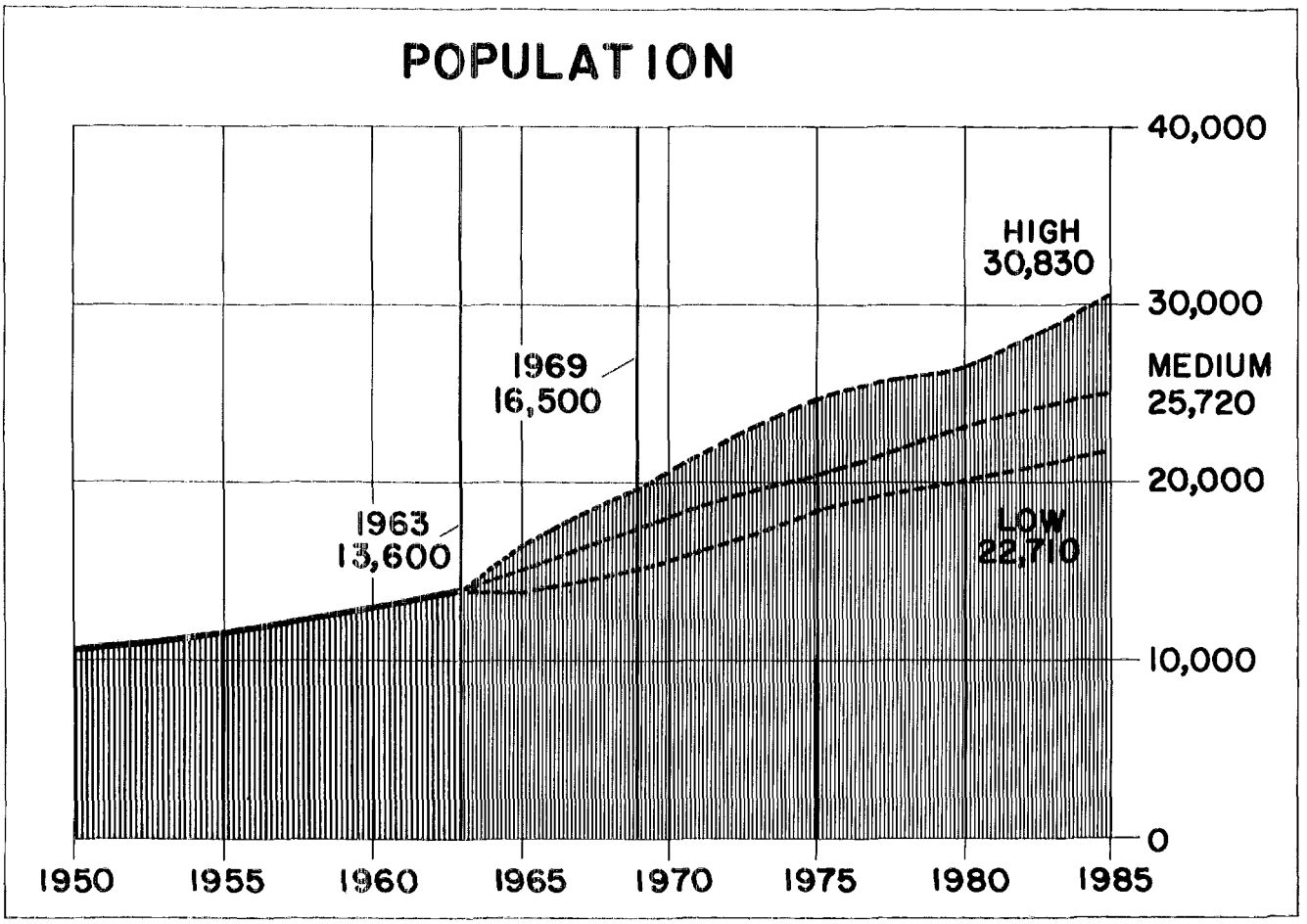
period many units have been removed from the inventory: 326 old Sundt apartments that lined Trinity drive are gone; 50 Denver Steel houses were removed from Rim road; and many duplexes and quads are being converted to single or duplex units. Even so, the rate of construction meets the Daly estimate, which took these losses into account, that an annual average of 75 to 170 dwellings would have to be built over the next 20 years to meet the requirements of the expanding population.

There is still plenty of room for new houses. In keeping with the proposals of the Comprehensive Plan, Barranca Mesa and White Rock continue to be developed. Barranca Mesa, with 440 houses already built, will get 22 more houses this year and has room for an additional 170. In White Rock and Pajarito Acres the population can be doubled before land runs out. Empty lots throughout the community are being filled and the preliminary plat for redevelopment of Rim road where Denver Steel houses were removed, has been approved.

The Comprehensive Plan envisioned space for another 900 homes on North Mesa but prospects for extensive development there are uncertain.

Development of North Mesa was the most controversial issue of the





Comprehensive Plan, with violent objections being voiced to relocation of the baseball fields, stables and fairgrounds, the establishment of a mobile home development and removal of the picnic grounds. Ultimately, the baseball fields and picnic grounds were left as they were with a buffer zone composed of commercial and industrial park areas between them and the residential sections. The Plan maintains that development of the residential area depends upon removal of the fair grounds and stables to Bayo or Rendija canyons but the sore subject is no longer discussed.

Most proposals for North Mesa are academic now anyhow because the AEC has released only about 60 acres of land for residential development. This area, in the west and southwest, has been sold in three plats to private developers who are now confronted with the high cost of bringing utilities to the mesa. Brenner estimates it will cost about a half million dollars to serve it.

Another section of land adjacent to the baseball field on the south has been sold for commercial development but the rest of the mesa, the entire area occupied by the stables and fairgrounds, plus the eastern point known as Kwage Mesa, has been retained by the AEC. The AEC also holds residential land just east of Club road and Arizona which the Plan earmarked for 20 houses, and the land west of Western Area which could be developed if the West Loop road is built.

The development of Rendija canyon for about 1,000 houses was proposed in the plan for "if and when space is needed." Such a development remains in the future.

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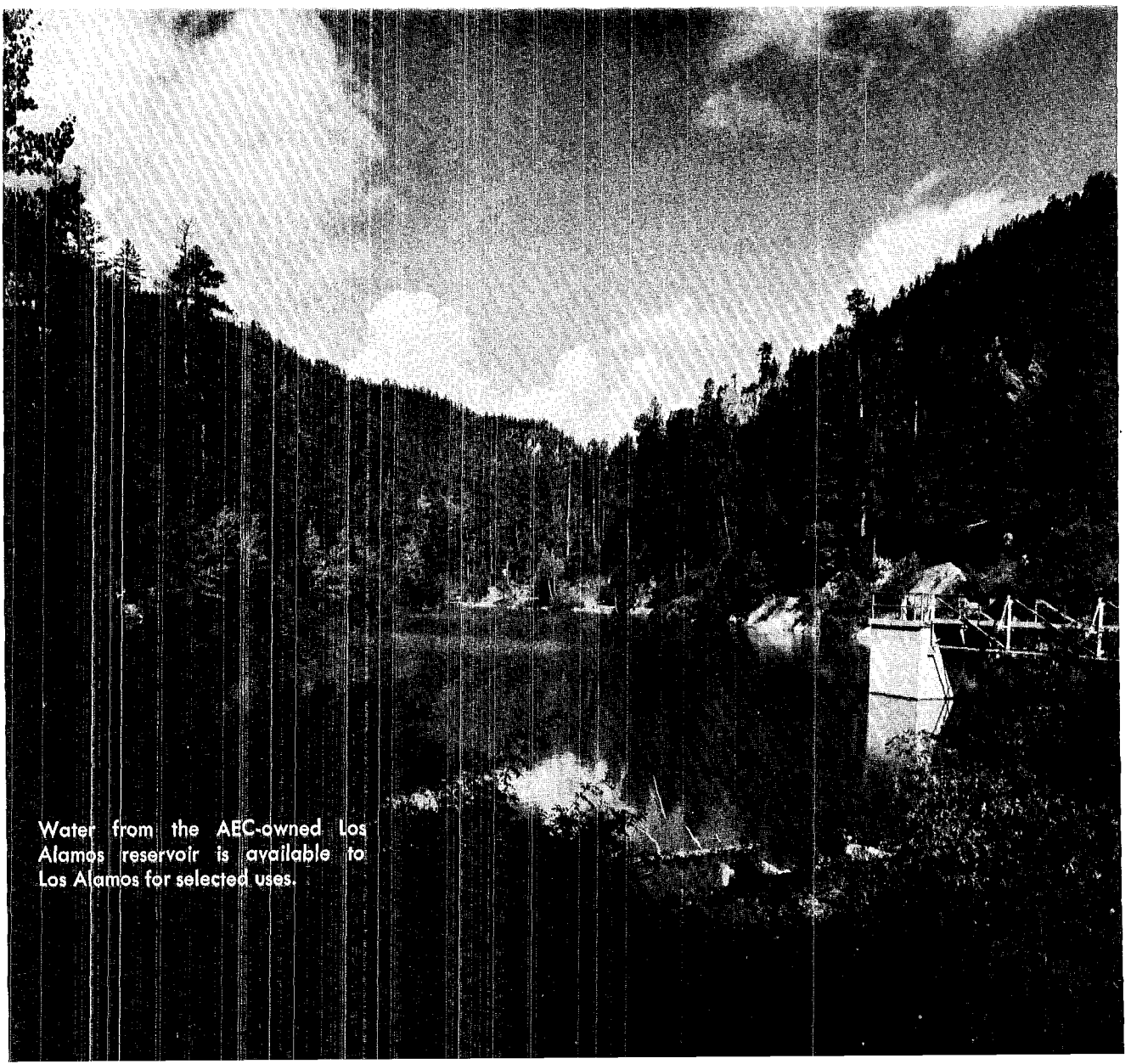
Water—a matter of concern in this 427-gallons-per-day-per-person community

Long before residential land runs out, however, Los Alamos could run out of water and this is a problem the Planning Commission is concerned about even now.

With the land now in private ownership there is room for a total population of 20,000 to 24,000. At the present rate of consumption, which in Los Alamos is a remarkably high 427 gallons per day per person, the community's water supply can support just about that many people or somewhat fewer. Lest Los Alamos' growth be limited by its water supply, possibilities are already being explored for acquiring more water from the San Juan-Chama Diversion project or by purchasing water rights in the Valley. Even increased water rates could help by reducing the per capita consumption.



Water from the AEC-owned Los Alamos reservoir is available to Los Alamos for selected uses.

The High School Instructional Materials Center is one of the latest structures built for Los Alamos schools.

Schools

Some rare bad guessing by the Daly Company

Some rare bad guessing by the Daly Company has made itself evident in school planning and probably can be attributed to the town's tendency to grow rapidly in spots rather than in a predictable sprawl, plus the unusual amount of shifting of population as government-owned homes were sold or razed. Projections are further complicated by the fact that, although the total population is keeping pace with Daly's low estimates, families are aging and, are decreasing markedly in size. Brenner expects this trend to be clear when specific figures are available after the 1970 census.

The Comprehensive Plan proposed immediate replacement of the old Central school which was located west of the Lodge between Central and Canyon road. Instead, the school was razed almost immediately and there has been no need for replacement. Canyon school in the Eastern area also is suffering from a severe enrollment decrease and all other elementary schools in the townsite continue to decrease. In White Rock and Barranca Mesa, on the other hand, enrollments continue to grow, bringing an overall increase in school enrollment.

Construction of a new high school and elementary school on North Mesa, both proposed in the Plan for 1970, now seems remote. There are no plans for additional schools in White Rock in the near future but land has been set aside for both an elementary and a junior high school should the need arise.

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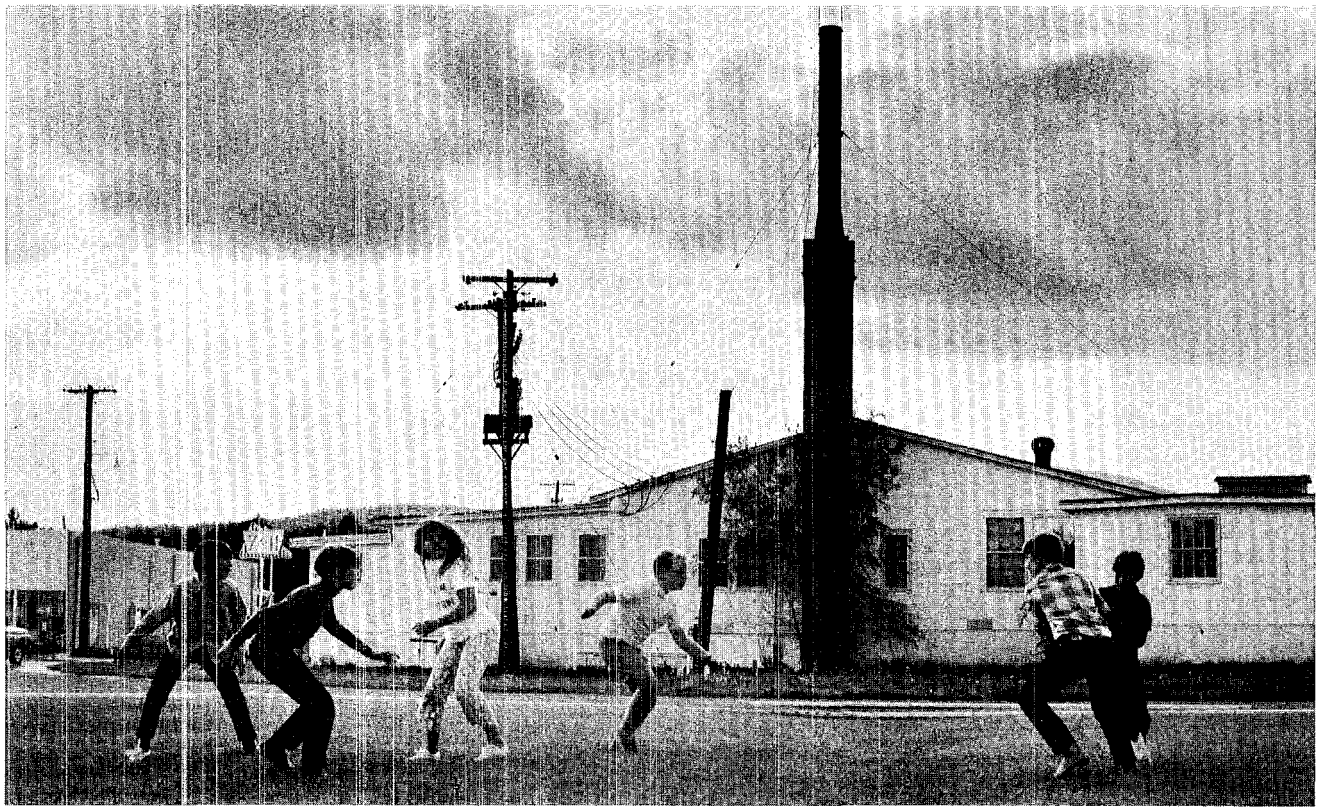
Recreational Development

Most proposals are either completed or in progress

A picnic ground unit along Camp May road overlooks Los Alamos.



Youngsters play on the controversial park and ballfield area north of Nectar street which is threatened by commercial expansion. At rear is the Recreation Hall. Its functions are expected to be transferred to the old Mountain States Telephone Company building when vacated within the next year.

Except for relocation of the major recreational facilities on North Mesa to Bayo Canyon, most of the Comprehensive Plan's proposals for recreational development already have been completed or are in progress.

Some 12 play lots have been scattered throughout the residential areas and two more will be built in the next couple of years. Playgrounds have been established in conjunction with the schools and tennis courts and ball parks have been built in Western Area and White Rock. Picnic areas have been established at Camp May and along Camp May road.

With the land still in the hands of the AEC, 120-acre Kwage Mesa is not expected to be developed for recreation in the forseeable future but Deer Trap Mesa at the eastern tip of Barranca has been deeded to the county and designated as a recreation site.

A golf driving range at White Rock is seen as a possibility in the near future and land has been set aside for a golf course proposed for 1984, although no plans have been made for its construction.

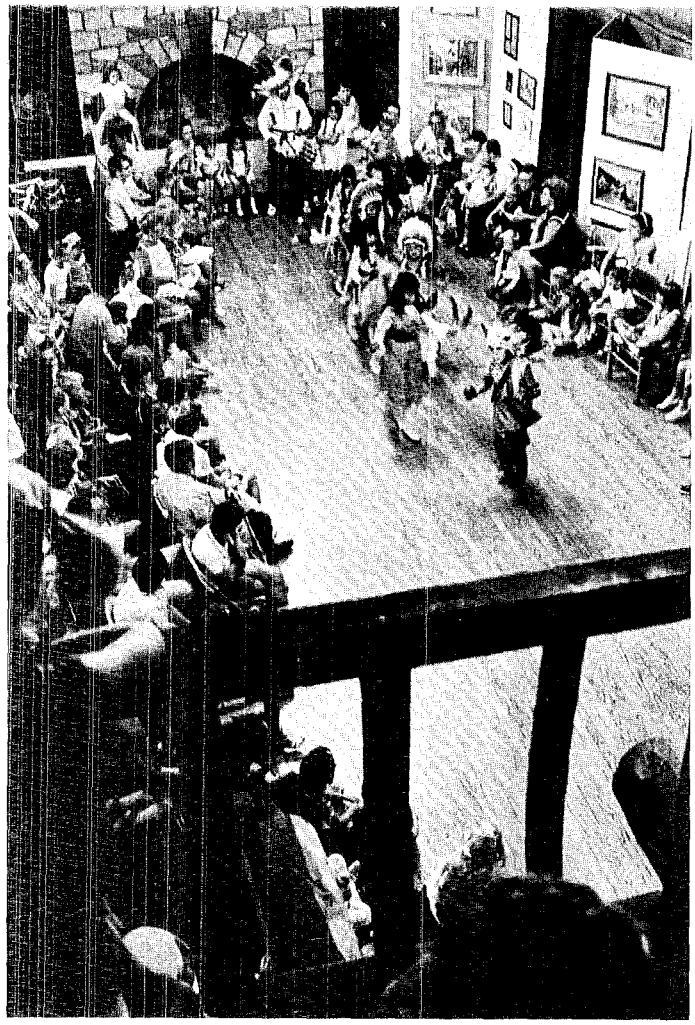
The Planning Commission has begun investigating the needs for a Civic Center complex—a cluster of buildings around the Lodge and the County building for cultural and governmental activities. As proposed in the Plan, the center would include a civic auditorium, a new library, a youth and recreation center, a museum, and buildings for police and fire headquarters, courts and school administration.

To replace the overworked and dilapidated Recreation Hall on Nectar, the county tentatively plans to take over the old Mountain States Telephone Company building when it is vacated sometime within the next year. This building could be used in lieu of a 20,000 square-foot structure proposed for construction in the Civic Center complex by the Comprehensive Plan. Funds for construction of a youth center at White Rock have been budgeted for next year. Soon, the Planning Commission expects to discuss the possibilities for selling the present library and the existing police station for commercial purposes and building new facilities in the Civic Center complex.

Although many of the proposed buildings may be unnecessary in the immediate future, the Planning Commission feels the time has come to decide what will be done, when they will be needed and how they might be financed.

The Third Annual Los Alamos Arts Festival

Above, the Los Alamos Arts Council's Festival included a dance concert. This photo was taken during a presentation entitled "Landscapes." Left, the art show at the Lodge drew many visitors.

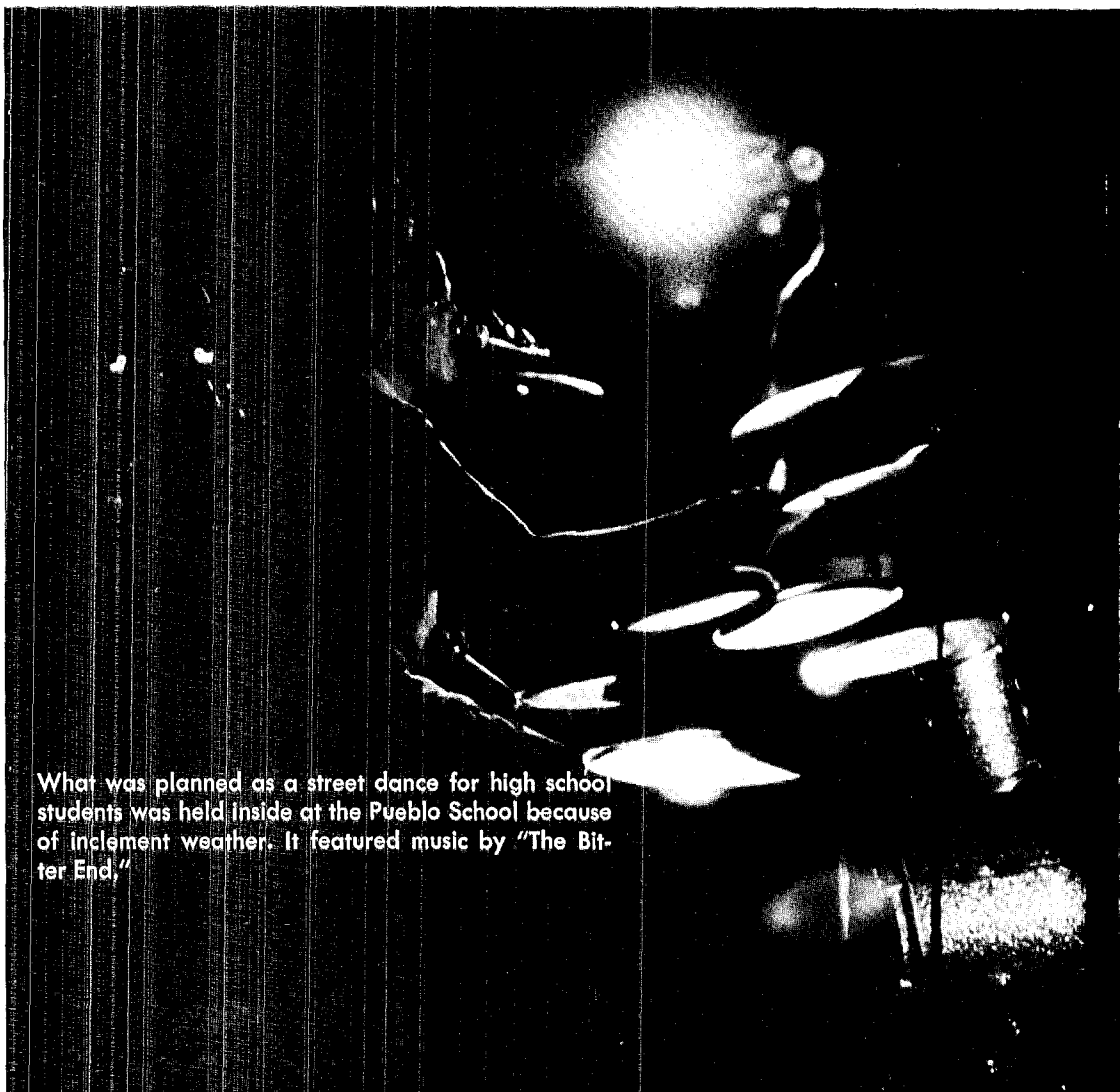


The Arts Festival included some physical entertainment, above. Moses Pena, Nambe, sets the beat for young Indian dancers, right.

At the chamber music concert, soprano Patricia Mendius sings "Chansons Madecasses" by Ravel. Armida Caird plays the piano; Lynne Anderson, the flute; Don Beene, the cello.

The Los Alamos Arts Council planned something for everyone, including pony rides for the kids.

Members of the group reciting the drama reading, "Lysistrata" are Jeanne Stein, Jann Szalay, and Dana Balibrera.



What was planned as a street dance for high school students was held inside at the Pueblo School because of inclement weather. It featured music by "The Bitter End."

short subjects

In the first eight months of this year there were 1,847 more visitors to the LASL Museum and Exhibit Hall than during all of last year. By the end of August, 65,900 persons had registered at the facility compared to 64,093 during all of 1968.

In August of this year there were 1,311 more visitations than in the same month of 1968. Visitors numbered 14,721 in August of this year and 13,410 during the month in 1968.

Louis Rosen has been named to serve on the Nuclear Physics Panel whose members were appointed by the National Academy of Sciences' Physics Committee. He is chairman of a subpanel on accelerators.

The Nuclear Physics Panel is charged with making an in-depth study of nuclear physics as it pertains to national objectives and the special needs of the Federal government now and in the immediate future. Deliberations of the panel will be made available to the Office of Science and Technology, the President's Science Advisory Committee and the Atomic Energy Commission. These will include opportunities in low- and medium-energy physics, requirements for new facilities and personnel, level of effort required to meet national objectives, and suggested priorities for current research and new facilities.

Howard I. Kraig, W-1 staff member, died Sept. 4 at the age of 43. Memorial services were held in the Los Alamos Jewish Center. He is survived by his wife, Ida, and four children, Ellen, David, Robert and Barbara.

John C. A. Grinnel, unit leader, Process and Tooling Design, GMX-3, retired last month after more than 24 years with the Laboratory. He originally was a member of SD-1 and transferred to GMX-3 in November of 1948. Grinnel and his wife plan to remain in Los Alamos.

Jack Worlton, alternate Coordinator for Automatic Data Processing (CADP), is writing a history of the MANIAC I project for the American Federation of Information Processing Societies.

MANIAC I was the Laboratory's first stored-program computer. It was designed and built by Group T-7 under the leadership of Nicholas Metropolis who is currently a C-division advisor. The MANIAC I project was started in 1949 and completed in 1952.

The project-history is part of a five year program directed by the National Museum of History and Technology of the Smithsonian Institution. Worlton is working with Uta C. Merzbach, curator of mathematical instruments for the National Museum.

He will write the history in addition to performing his regular duties at the Laboratory. It will include the planning of MANIAC I, its use and applications, a technical description of its hardware, and a summary of information sources available.

James S. Coleman, a Los Alamos Scientific Laboratory staff member in Group CMF-4 in 1953-67, has been appointed technical advisor to the Atomic Energy Commission's assistant general manager for research and development.

Coleman, during his employment at the Laboratory was engaged in chemistry research. He served in several local government positions and participated in the transfer of community functions to the local county.

He joined the AEC in 1967 as a chemist in the Division of Research.

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the technical side

Presentation at International Symposium on Nuclear Magnetic Resonance Spectroscopy, Birmingham, England, July 15-18:

"A Study of ^{15}N NMR Shifts in Liquid $^{15}NH_3$-Solvent Mixtures" by M. Alei, Jr., A. E. Florin, both CMF-2, and W. M. Litchman, University of New Mexico

Presentation at International Conference on Clustering Phenomena in Nuclei, Bochum, West Germany, July 21-24:

"Cluster Amplitudes from Rearrangement Collisions in Light Nuclei" by W. J. Thompson, S. Edwards, D. Robson, all Florida State University, and T. L. Talley, W-4

Presentation at Conference on Computational Physics sponsored by V Institute of Physics and V Physical Society at the UKAEA Culham Laboratory, Abington, Berkshire, England, July 28-30:

"Computing with Imprecise Numbers" by N. C. Metropolis, C-DO

Presentation at IAEA Second Symposium on the Physics and Chemistry of Fission, Vienna, Austria, July 28-Aug. 1:

"Fission Induced by the ^{240}Pu (p,p'f) Reaction" by H. C. Britt and S. C. Burnett, both P-DOR, and J. D. Cramer, W-8

"Fundamental Fission Signatures

new hires

Accounting department

Estell V. Loddy, Los Alamos, AO-DO (rehire)

C division

Patricio R. Gurule, Santa Fe, C-1
Leo J. Hunt, Velarde, C-1
Edna E. McKee, Los Alamos, C-1 (rehire)
Kent R. Rogers, Liscomb, Iowa, C-1
James F. Bem, Detroit, Mich., C-2

CMB division

Leo P. Archuleta, Los Alamos, CMB-6 (rehire)

CMF division

Gerry Wood, Oklahoma City, CMF-4 (postdoctoral)
James Sites, Oak Ridge, Tenn., CMF-9 (postdoctoral)

D division

Robert N. Nelson, Salt Lake City, D-2

Directors office

Sandra L. Hawkins, Los Alamos, ADFP

Engineering department

Edwin K. Tucker, Espanola, ENG-DO
Gerald Kestell, Thompson Falls, Mont., ENG-4
Phillip G. Seamster, Arlington, Va., ENG-5

GMX division

Donald J. Lauer, Seneca, Kans., GMX-3
Antonio T. Ortiz, Santa Fe, GMX-3
Donald J. Sharpless, Willard, Ohio, GMX-3
Carpio P. Martinez, Espanola, GMX-7 (casual)
Dorothy A. McNeese, Los Alamos, GMX-7

H division

Robert D. Helm, Los Alamos, H-1
LaMar J. Johnson, Idaho Falls, H-1
Phyllis N. Thompson, Los Alamos, H-1
Judith C. Hutson, Los Alamos, H-4 (casual)
Grace M. Miller, Los Alamos, H-4
Owen R. Moss, Seattle, Wash., H-5

J division

Elizabeth M. Davidson, Los Alamos, J-1 (casual)
Carl E. Buttrill, Jr., Bloomfield, N.M., J-7
Gene H. McCall, Albany, Ga., J-8

K division

Theodore Andone, Jr., Phoenix, Ariz., K-4
James D. Easley, Longview, Wash., K-4
Wallace T. Hunter, Phoenix, Ariz., K-4

Mail and Records

Joe S. Quintana, Santa Cruz

MP division

Frank T. Shively, Quaker City, Ohio, MP-DO
Nobuyuki Tanaka, Tokyo, Japan, MP-DO
Emilio E. Ortiz, Chimayo, MP-1
Modesto C. Vigil, Santa Cruz, MP-1
Jerry D. Wallace, Princeton, Minn., MP-2 (rehire)
William E. Clover, Los Alamos, MP-5
Alfred M. Tucker, Los Alamos, MP-5 (rehire)

P division

James H. Jett, Albuquerque, P-DOR (postdoctoral)
Sven B. F. Wahlborn, Stockholm, Sweden, P-DOR)
John W. Romero, Santa Fe, P-12
Juan R. Baldonado, Espanola, P-15

Personnel department

Janice E. Shadel, Los Alamos, PER-1 (casual-rehire)
Maria T. Mojica, Los Alamos, PER-3

Public Relations department

Charles I. Mitchell, Los Alamos, PUB-DO (rehire)

Shops department

Harvey J. Haagenstad, Central City, Colo., SD-DO
Elmer C. Richberger, Berkeley, Calif., SD-1
Pete N. Romero, Fairview, SD-1

Supply and Property department

Ronald D. Holmes, Los Alamos, SP-3
Cheryl J. Helm, Los Alamos, SP-11 (rehire)

W division

Audrey L. Martinez, Espanola, W-3

and Their Applications to Nuclear Safeguards" by L. V. East and G. R. Keepin, both N-6

"Possible Correlation of the Gerade-Ungerade Character of Independent Particle Levels with Fission Asymmetry" by G. P. Ford and Darleane C. Hoffman, both J-11

"Single-Particle Calculations for Deformed Potentials Appropriate to Fission" by M. Bolsterli, E. O. Fiset and J. R. Nix, all T-9

Presentation at seminars, Defence Standards Laboratory, Melbourne, Australia, July 28, 30-Aug. 4:

"Detonation Calculations" by C. L. Mader, T-5 (invited)

Presentation at Eleventh National Heat Transfer Conference, Minneapolis, Minn., Aug. 3-6:

"Heat Pipe Design Considerations" by J. E. Kemme, N-5

"Numerical Predictions for Circular Tube Laminarization by Heating" by D. M. McEligot, University of Arizona, Tucson, and C. A. Bankston, N-7

"Transition from Turbulent to Laminar Gas Flow in a Heated Pipe" by C. A. Bankston, N-7

Presentation at International Summer School on Crystallographic Computing, Ottawa, Canada, Aug. 3-11:

"The Inclusion of Secondary Extinction in Least-Squares Refinement of Crystal Structures" by A. C. Larson, CMF-5

Presentation at 1969 Summer Advanced Study Institute on Earth's Particles and Fields, University of California, Santa Barbara, Aug. 4-15:

"An Isotropic Distribution of Energetic Electrons in the Earth's Magnetotail and Magnetosheath" by S. Singer and S. J. Bame, both P-4

"Magnetotail Plasma and Magnetospheric Substorms" by E. W. Hones, P-4

"Plasma Measurements Near the Earth's Bow Shock: Vela 4" by M. D. Montgomery, P-4

"Solar Wind Stimulation of the Magnetosphere" by S. J. Bame, P-4

Presentation at PuO_2 Helium Release Information Meeting, Germantown, Md., Aug. 7:

"Exploratory Helium Release Studies" by R. N. R. Mulford, CMF-5 (invited)

"Recent LASL Helium Studies on PuO_2 Microspheres and PuO_2 Solid Solution Fuel Forms" by R. N. R. Mulford, CMF-5 (invited)

Presentation at Eighth International Congress of Crystallography, Stony Brook, N.Y., Aug. 7-27:

"Computer Programs for Symmetry Operations in Crystal Structure Calculations" by A. C. Larson, CMF-5

"Crystal Structure and Superconductivity" by A. L. Giorgi and E. G. Szklarz, CMB-3

"The Crystal Structure of Aquobis (Ethylenediamine) Copper(II) DI-[Catena-DI-MU-Cyano Cuprate(I)]" by R. J. Williams, D. T. Cromer, and A. C. Larson, all CMF-5

"Solid State Reactions and Transitions of Refractory Carbides" by A. L. Bowman and T. C. Wallace, both CMB-3, and G. P. Arnold, P-2

Presentation at 130th Meeting of the American Astronomical Society, Albany, N.Y., Aug. 11-14:

"A Comparison of Static and Hydrodynamic Cepheid Models" by C. F. Keller, J-15, and J. P. Mutschlecner, Indiana University, Bloomington

"Plasma Instabilities Associated with Heat Conduction in the Solar Wind and Their Consequences" by D. W. Forslund, T-2

Presentation at Gordon Research Conference on the Chemistry and Physics of Liquids, Holderness, N.H., Aug. 11-15:

"Neutron Diffraction Study of Liquid ^{36}Argon" by J. L. Yarnell, P-2

Presentation at Second International Conference on Medical Physics, Boston, Mass., Aug. 11-15:

"Laser Photometers for Measurement of Low-Angle Light Scattering and Fluorescence of Cells" by P. F. Mullaney and M. A. Van Dilla, both H-4

Presentation at International Symposium on Electron and Nuclear Magnetic Resonance, sponsored by the Australian Academy of Science at Monash University, Clayton, Victoria, Australia, Aug. 11-15:

"EPR Studies of Some Pentavalent Uranium Compounds" by H. G. Hecht, W. B. Lewis and M. P. Eastman, all CMF-2

"^{19}F NMR and Raman Spectral Studies of Tantalum(V)-Fluoride Ion Complexes in Anhydrous Hydrogen Fluoride" by L. B. Asprey, N. A. Matwiyoff and W. E. Wageman, all CMF-4

Presentation at International Symposium on Neutron Capture Gamma Ray Spectroscopy, Studsvik, Sweden, Aug. 11-15:

"Excitation of Levels in ^{235}U by the ^{234}U(n, gamma) ^{235}U Reaction" by E. T. Jurney, P-2

Presentation at Conference on Radiation Transport, La Jolla, Calif., Aug. 11-19:

"Calculations of Output for the Barsac, AJO, and Snubber Events" by G. R. Spillman, T-2

"Calculations of Radiation Transfer Based on Exact Solutions" by H. G. Horak, J-10

"Resonance Scattering by Artificial Barium Clouds" by H. G. Horak, J-10

Presentation at Seminar at California State College at Los Angeles, Aug. 12:

"NMR Studies of Interactions in Electrolyte Solutions: ^{1}H, ^{19}F, ^{59}Co, and ^{13}C Resonances" by N. A. Matwiyoff, CMF-4 (invited)

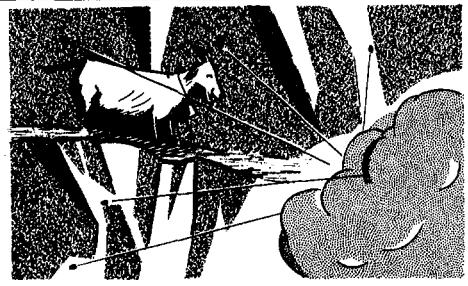
Presentation at Summer Session on Aerospace and Undersea Medicine, MIT, Cambridge, Mass., Aug. 13-14:

"Human Radiation Response in Relation to Manned Space Flight" by W. H. Langham, H-4

Presentation at Atlas Symposium on Computers in Numbers Theory, Atlas Computer Laboratory, Oxford, England, Aug. 18:

"Part A—Expansion of Square Roots of Integers in Various Bases. Part B—Spectrum of Determinate Values in (0, 1) Matrices" by N. Metropolis, C-DO

20 years ago in los alamos



Culled from the files of the Oct., 1949, Santa Fe New Mexican by Robert Porton

Get Your Goat, Mr.?

An excited resident Sunday reported that William, Jay Kirkpatrick's goat, was stranded on a ledge halfway down the side of a Los Alamos canyon—"apparently injured." Kirkpatrick, and others, tried unsuccessfully to retrieve his mohaired friend. The police report quotes the following: "Impossible to get goat off ledge. Suggest he be shot". So, an inspector aimed his gun, fired, and missed. Billy, his sense of humor completely upset, skipped up the side of the cliff under his own power and trotted away. The real let-down came later when some children volunteered the information that Billy browses up and down the side of the canyon almost every day.

Representative Stresses Research Need

The people of the United States must realize that the world situation is at "an urgency just short of war," a member of the Joint Congressional Committee on Atomic Energy told reporters at Los Alamos yesterday in evaluating the present importance of the atom bomb. Representative Chet Holifield (D-Calif.) made the comment in referring to a recent declaration by Physicist Dr. Harold C. Urey that Russia "can and probably will" wipe out the American atomic lead. The California Democrat and three fellow members of the Joint Committee met here this week. Continued advancement in weapons research at Los Alamos was cited by the congressmen as the greatest national security measure now available. Others in attendance were Representatives Melvin Price (D-Ill.), Henry Jackson (D-Wash.) and Carl Hinson (R-Calif.).

No Ordinance—Creating Power

Los Alamos County has given up hope of creating needed ordinances here and will rely on state law to enforce needed civic improvements. According to a local official, discussions had been held relating to health and sanitation, pet control and traffic ordinances for the County, but decisions reached later indicate the County did not have ordinance-creating power. A meeting with state officials regarding the problem will be scheduled.

Miss America Visits Hill

The highlight of the annual convention of the Southwestern District of Kiwanis International was the appearance of Miss Jacque Mercer, who won the title of Miss America this year. The Governor's banquet and ball were held in the Los Alamos Community Hall. Miss Mercer of Phoenix, Arizona, is the daughter of a Kiwanian. More than 400 delegates passed through security gates to attend the affair.

what's doing

PUBLIC SWIMMING: High School Pool—Mondays through Thursdays, 7:30 to 9 p.m.; Saturdays and Sundays, 1 to 6 p.m.; Adult Swim Club, Sundays, 7 to 9 p.m. (Effective through Dec. 18. Pool then closed until January).

CHORAL SOCIETY: Rehearsals now in progress each Tuesday, 7:30 p.m., Lodge. New voices welcome. Winter concert—"Carmina Burana," Carl Orff; Spring concert—Bach's "St. Mathew's Passion." For further information call John Ward, 8-4554.

MESA PUBLIC LIBRARY: Oct. 8 through Nov. 6, exhibit of handcrafted furniture and other articles by El Mercado de Taos.

NEWCOMERS CLUB: Exhibition and demonstration of holiday decorations, Oct. 22, 7:30 p.m., Los Alamos National Bank Hospitality Room. For information call Mrs. Fran Talley, 662-4110.

SIERRA CLUB: There will be no meetings of the Sierra Club until further notice. For information call Brant Calkin, 455-2468.

OUTDOOR ASSOCIATION: No charge, open to the public, contact leader for information about specific hikes.

Oct. 5—Wheeler Peak, W. V. Green, 672-3203

Oct. 12—Caballo Mountain, Norris Nereson, 2-3839

Oct. 19—Lake Peak, Ed Kmetko, 8-4911

LOS ALAMOS ARTS COUNCIL: Drama reading, Oct. 19, 7:30 p.m., Lodge. For information call Mrs. Marie Filip, 2-2135.

RIO GRANDE RIVER RUNNERS: Meetings scheduled for noon, second Tuesday of each month at South Mesa Cafeteria. For information call Cecil Carnes, 672-3593.

the technical side

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Presentation at 39th Annual Meeting of the Biological Photographic Association, Inc., Rochester, Minn., Aug. 18-21:

"Photography of Biological Response to Highly Radioactive Particles" by Julia Langham, H-DO

Presentation at Eighth Annual AUA Faculty-Student Conference, Argonne National Laboratory, Aug. 18-22:

"Numerical Simulation of High Temperature Plasma" by R. L. Morse, P-18 (invited)

Presentation at High Energy Physics Conference, Boulder, Colo., Aug. 18-23:

"Upper Limit on the Structure Dependent Radiation in $K^+ \rightarrow d^+ + \nu + \gamma$" by R. J. Macek, MP-6

An electrical storm south of Los Alamos was photographed by Jose (Mitzie) Ulibarri, D-8.

BACK COVER:

Repair work on three miles of the State Road 4 spur leading to Los Alamos is nearly completed. When this scene was photographed the road was being heated by the apparatus being towed by the lead vehicle. The grader, following, bladed off the high spots softened by heating. The road was widened in the area shown here and guard rails replaced. Other parts of the road were patched or overlayed with new surfacing and fills along the stretch were cleaned. Final touches are chip sealing the entire spur.

Henry T. Motz
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Los Alamos, New Mexico 87544